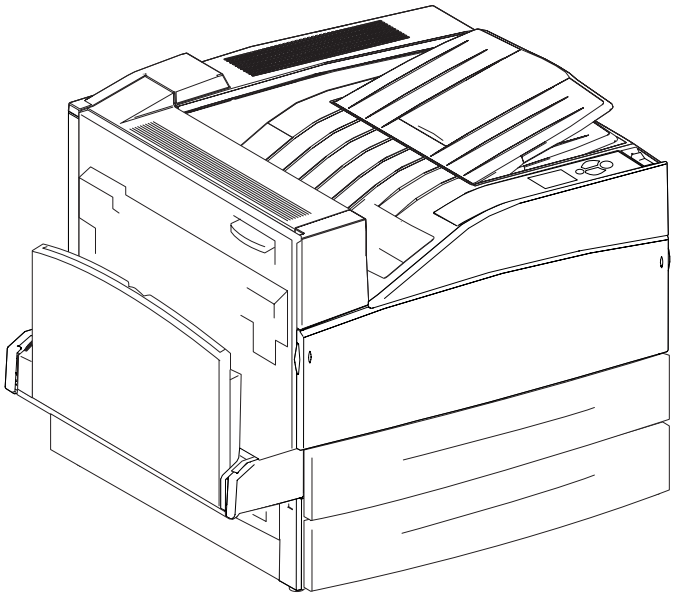
B930
Laser Printer
Base Engine Service Manual



Contents

Chapter 1 Introduction 1-1
Conventions 1-1
Safety 1-1
Laser Beams 1-1
Chapter 2 Principles of Operation 2-1
Engine 2-1
Summary of Print Process 2-1
Driving Force Transmission Path 2-4
Main Motor 2-4
Drum Motor 2-5
Paper Transport 2-5
Paper Transport Path 2-5
Layout of Paper Transport Path 2-6
Functions of Main Components 2-7
Paper Cassette 2-7
Paper Feeder 2-8
MPF 2-9
Xero 2-11
Fuser 2-13
Exit 2-14
Drive 2-15
Electrical Components and Controller 2-16
Control 2-17
Paper Size Control 2-17
ROS Control 2-18
Fuser Control 2-18
Schematic Diagram of Safety System 2-19
1000 Sheet Feeder 2-19
Driving Force Transmission Path 2-19
Main Motor 2-19
Paper Transport 2-20
Paper Transport Path 2-20
Layout of Paper Transport Path 2-21
Paper Transport 2-22
Paper Transport Path 2-22
Layout of Paper Transport Path 2-23
Functions of Main Components 2-24
Paper Cassette 2-24
Paper Feeder 2-25
Main Components 2-27
Control 2-28
Paper Size Control 2-28
Exit 2 2-29
Driving Force Transmission Path 2-29
Motor Assy Exit 2 2-29
Motor Assy-offset 2-29
Paper Transport 2-30
Paper Transport Path 2-30
Layout of Paper Transport Path 2-30
Functions of Main Components 2-31

HCF 2-33
Overview 2-33
Configuration 2-33
Main Functions 2-34
Paper Capacity 2-34
Paper Size 2-34
Feedable Paper Weight 2-34
Paper Feeding 2-34
Outline 2-34
Feeder Block Operation 2-36
Transport Block Operation 2-37
M/C Status Monitoring 2-38
Static Paper Jam Detection 2-38
Interlock Detection 2-39
Tray Insertion Detection 2-39
Paper Size Detection 2-40
Tray Lifting 2-41
No-Paper Detection 2-42
Remaining Paper Volume Detection 2-42
Tandem Tray 2-43
Driving Force Transmission Path 2-43
Main Motor 2-43
Paper Transport 2-44
Paper Transport Path 2-44
Layout of Paper Transport Path 2-45
Functions of Main Components 2-46
Paper Cassette 2-46
Paper Feeder 2-48
Main Components 2-49
Paper Size Control 2-50
Duplex 2-51
Driving Force Transmission Path 2-51
MOTOR ASSY DUP 2-51
Paper Transport 2-51
Paper Transport Path 2-51
Layout of Paper Transport Path 2-52
Functions of Main Components 2-53
Finisher 2-54
Overview 2-54
Configuration 2-54
Paper Size and Weight 2-55
Functions and Applicable Trays 2-56
Paper Transfer 2-56
H-TRA 2-59
From H-TRA to Puncher 2-59
From Puncher to Compile Tray 2-60
From Compile Tray to Stacker Tray 2-62
From Puncher to Top Tray 2-62
Functions of Sensors along the Paper Path 2-63
Puncher 2-64
Adjusting Punching Positions 2-65
Punching 2-65
Detecting Punch Dust Full 2-66
Detecting Punch Dust Box 2-66
Functions of Puncher Sensors/Motors 2-66

Compile Tray 2-68
Outline of Operation 2-68
Capacity of Compile Tray 2-68
Compile Tray Operation with Multiple Paper Sizes 2-69
Tamping 2-69
Front Tamping 2-69
Rear Tamping 2-70
Center Tamping 2-70
Determining Tamper Home Position 2-71
Tamping 2-71
Offsetting 2-71
Functions of Compile Tray Sensors/Motors 2-72
Stapler 2-72
Stapling Operation 2-72
Staple Positions 2-72
Paper Sizes That Allow Stapling 2-73
Stapler Head 2-75
Functions of Stapler Sensors/Motors 2-76
Operation 2-77
Functions of Top Tray Sensors 2-77
Stacker Tray 2-77
Operation 2-77
Full Stack Detection 2-79
Functions of Stacker Tray Sensors/Motors 2-80
Power Supply and Interlock 2-81
Chapter 3 Wiring 4-1

General Wiring Diagram 4-1
Engine 4-2
Wiring Diagram between Parts 4-3
Configuration 4-3
Notes on Using the Wiring Diagram between Parts 4-4
1 Power supply 4-6
2 Fuser 4-7
3 Paper Feed 4-8
4 Xero / Deve 4-9
5 Drive / CRUM 4-11
6 Tray1 4-13
7 Tray2 4-14
8 MPF 4-16
9 ROS 4-19
10 Exit 4-19
11 Controller 4-21
1000 Sheet Feeder 4-22
General Wiring Diagram 4-22
Wiring Diagram between Parts 4-22
Configuration 4-22
Notes on Using the Wiring Diagram between Parts 4-23
1 Drive 4-24
2 Tray3 4-26
3 Tray4 4-28
Duplex 4-30
General Wiring Diagram 4-30
Wiring Diagram between Parts 4-32
Configuration 4-32
Notes on Using the Wiring Diagram between Parts 4-32
1 Duplex 4-33
Exit 4-35
General Wiring Diagram 4-35
Wiring Diagram between Parts 4-36
Configuration 4-36
Notes on Using the Wiring Diagram between Parts 4-37
1 Motor / Solenoid 4-38
2 Sensor / Fan 4-39
Finisher 4-41
General Wiring Diagram 4-41
Configuration 4-42
Notes on Using the Wiring Diagram between Parts 4-44
1 Power Supply 4-46
2 H-Transport 4-47
3 Sensor (Paper feed section) 4-48
4 Sensor (Exit section) 4-50
5 Motor 4-51
6 Motor / Clutch / Solenoid 4-52
7 Tamper 4-54
8 Stapler 4-55
9 Puncher1 4-56
10 Puncher2 4-57
HCF 4-59
General Wiring Diagram 4-59
Wiring Diagram between Parts 4-60
Configuration 4-60

Notes on Using the Wiring Diagram between Parts 4-61
1 Switch....4-62
2 Sensor....4-63
3 Sensor/Motor/Solenoid....4-65
Tandem Tray 4-67
General Wiring Diagram....4-67
Wiring Diagram between Parts 4-68
Configuration 4-68
Notes on Using the Wiring Diagram between Parts 4-69
1 Drive....4-70
2 Tray3....4-72
3 Tray4....4-74
Chapter 4 Plug/Jack 5-1
Engine 5-1
Connector [P (plug) / J (jack)] 5-1
List of P/J....5-1
P/J layout diagram....5-3
1000 Sheet Feeder....5-13
Connector [P (plug) / J (jack)] 5-13
List of P/J....5-14
P/J layout diagram....5-14
Duplex 5-16
Connector [P (plug) / J (jack)] 5-16
List of P/J....5-17
Exit 2....5-18
Connector [P (plug) / J (jack)] 5-18
List of P/J....5-18
Finisher....5-20
Connector [P (plug) / J (jack)] 5-20
List of P/J....5-20
P/J layout diagram....5-22
HCF 5-29
Connector [P (plug) / J (jack)] 5-29
List of P/J....5-29
Tandem Tray 5-32
Connector [P (plug) / J (jack)] 5-32
List of P/J....5-32
P/J layout diagram....5-34

Chapter 1 Introduction

This manual is a standard service manual containing information required for maintenance of this laser printer (standard specifications).

This manual is intended for use by OEMs when they provide maintenance services for this laser printer or when they prepare maintenance data. It is prohibited to use this manual for other purposes.

This document is protected by copyright. It is illegal to photocopy or duplicate any part of this document in any form without previous permission in writing.

Additional information about this printer, such as specifications, can be found in other supplied documents.

Conventions

The term "MSI" should be translated to "MPF" (Multi Purpose Feeder) in any text or illustration.

Tray numbering for all text and illustrations should be read in the in the following manner:

Printed Tray #	TG Tray #
1	2
2	3
3	4
4	5
5	1(MSI/MPF)
6	6 (HCF)
MSI/MPF	1
HCF	6

Maintenance operations requiring special cautions or additional information to descriptions of this manual are presented as "Warning", "Caution", or "Note", according to their nature.

If instructions are not observed, death or serious injury may be caused.

If instructions are not observed, injuries of workers or physical damages to assets (including this laser printer) may result.

NOTE Particularly important essentials for procedures, steps, rules, and other conditions.

Reference Incidental information to descriptions.

Safety

To prevent possible accidents during maintenance operation, you should strictly observe the "Warning" and "Caution" information in this manual.

Performing dangerous operations and procedures out of range of this manual should be avoided.

Occasionally procedures not covered by this manual may be required in actual operation, which

Laser Beams

This laser printer has a switch (INTERLOCK S/W 5V) which removes power to the laser beam output circuit, preventing operation of the laser beam output unit (ROS ASSY-12). The switch automatically removes power when the CRU is removed.

Do not turn the switch ON except for normal operation to prevent laser emissions during maintenance.

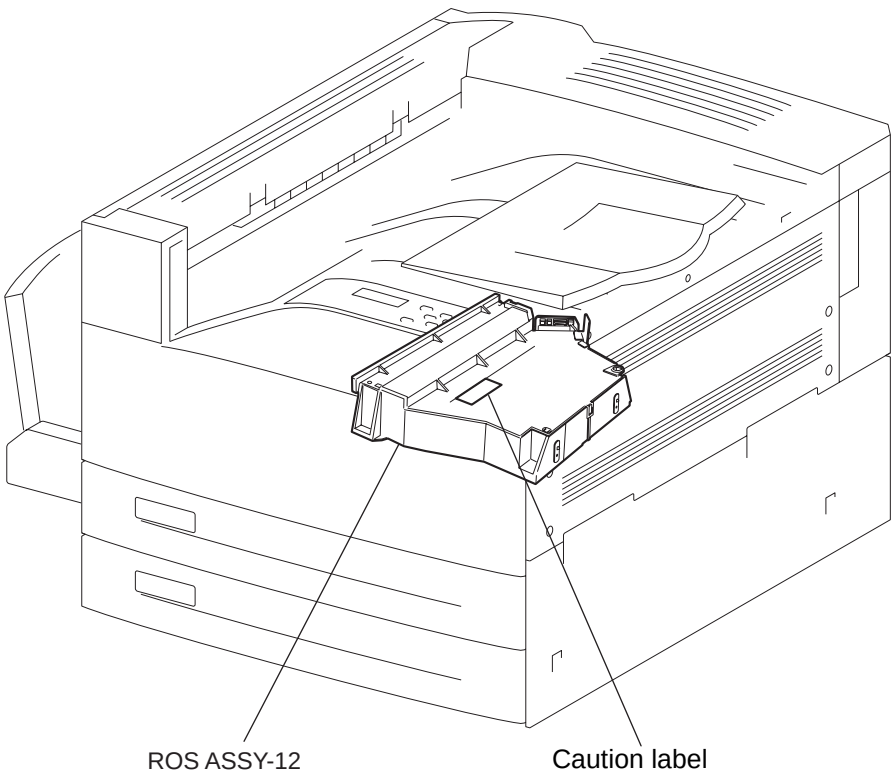
WARNING

- If your eyes are exposed to laser beams, you may lose your eyesight.
- Never open any cover if warning label for laser beams is attached there.
- Before disassembling and reassembling this laser printer, be sure to turn it OFF.
- When servicing this laser printer while it is running, be sure to follow the procedures specified in this manual.
- You should understand the laser beam is capable of causing injury to the human body, including anyone in the general area.

NOTE Laser beams have the following characteristics:

- Frequencies are smaller in width than other beams (sun and electric bulbs) and phases are uniform so that high monochromatic and convergence performance can be obtained and thin beams of light can reach places at a long distance.
- Due to the high convergence, beams are concentrated in high density and high temperature, which is dangerous to human body.

Reference: Laser beams of this laser printer are invisible rays which you cannot see.



Chapter 2 Principles of Operation

Engine

Summary of Print Process

Electrophotography is used in the FIO printer to print image on paper using a video signal sent from the PWBA ESS to the PWBA MCU F. The electrophotography is composed of the following 7 steps.

1. Charging

   Negative charges are uniformly distributed over the drum surface by the Bias Charge Roll.

2. Exposure

   The laser scanner scans the drum surface with a laser beam modulated with the signal from the PWBA ESS (controller), to create an invisible electrostatic latent image on the drum surface.

3. Development

   During development, toner particles are attracted to the electrostatic latent image on the drum surface, forming a visible toner image.

4. Transfer

   The toner image is transferred from the drum surface to the paper.

5. Detack

   Electric charges on the paper are partially neutralized. As a result, the paper is stripped off the drum surface.

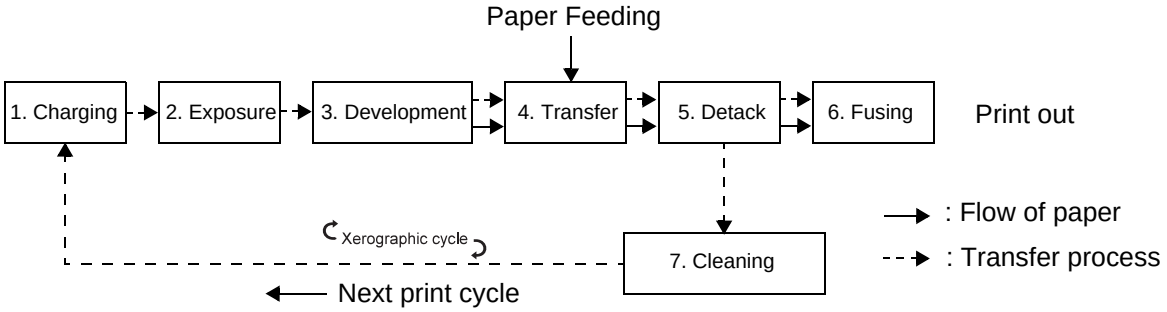
6. Fusing

   The toner image is permanently fixed to the paper by heat and pressure.

7. Cleaning

   The remaining toner is removed from the drum surface.

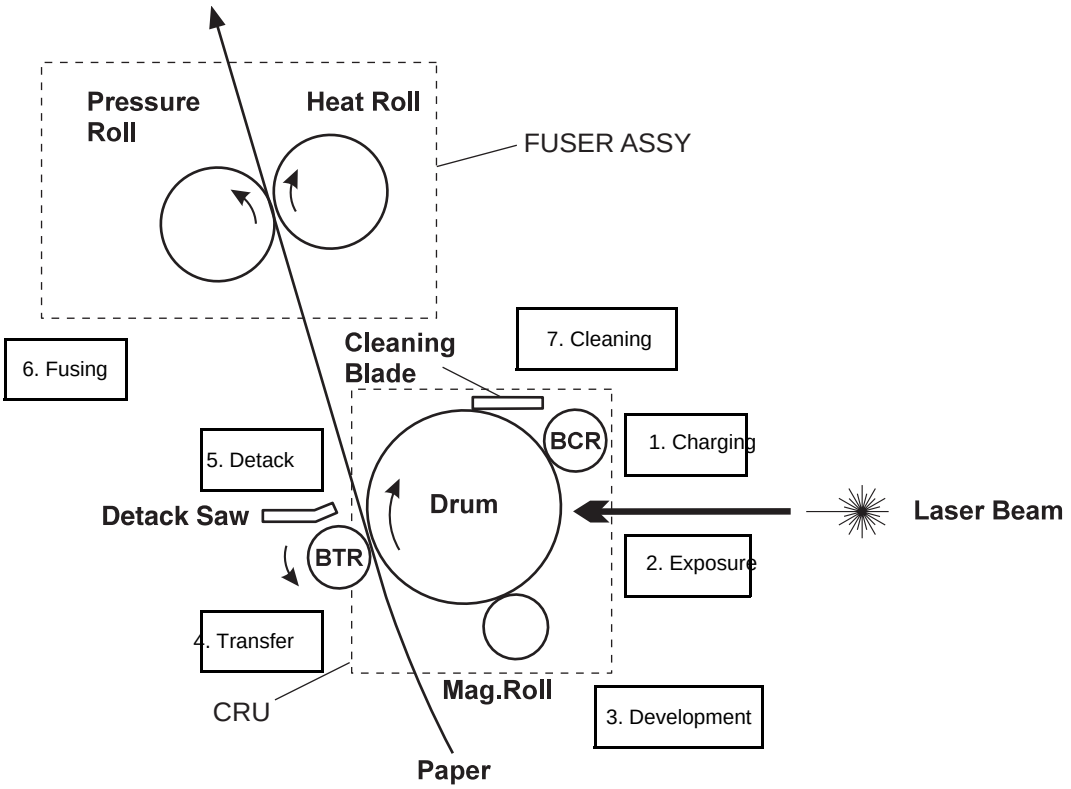
- Summary of print process



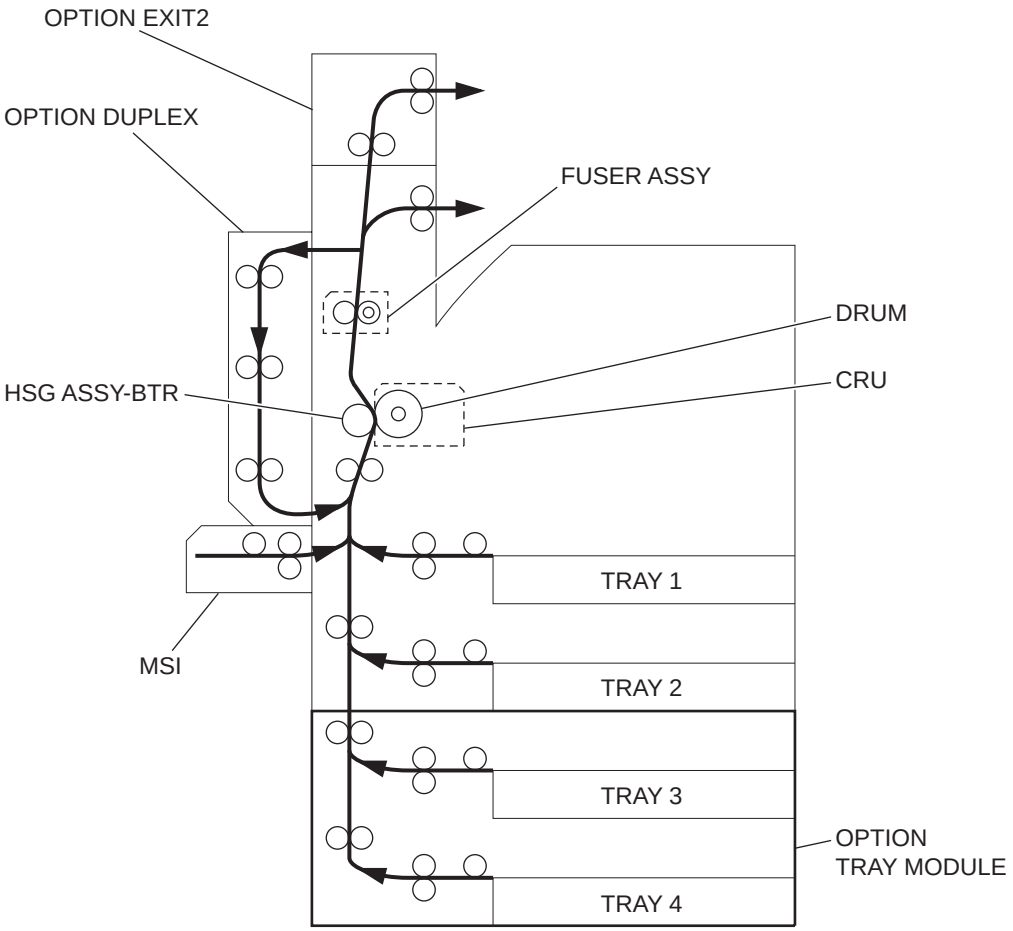
By rotating the drum, the drum surface undergoes various steps including charging, exposure, development, transfer, detack, and cleaning. A toner image is created on the drum surface and transferred to the paper. The paper is subject to the transfer, detack, and fusing steps by the paper transport mechanism. When the paper is positioned relative to the image, the toner image is transferred to the paper from the drum surface, and then fused.

Main components directly associated with the print process and paper transport are illustrated in the following figures.

- Components associated with print process



- Components associated with paper transportation



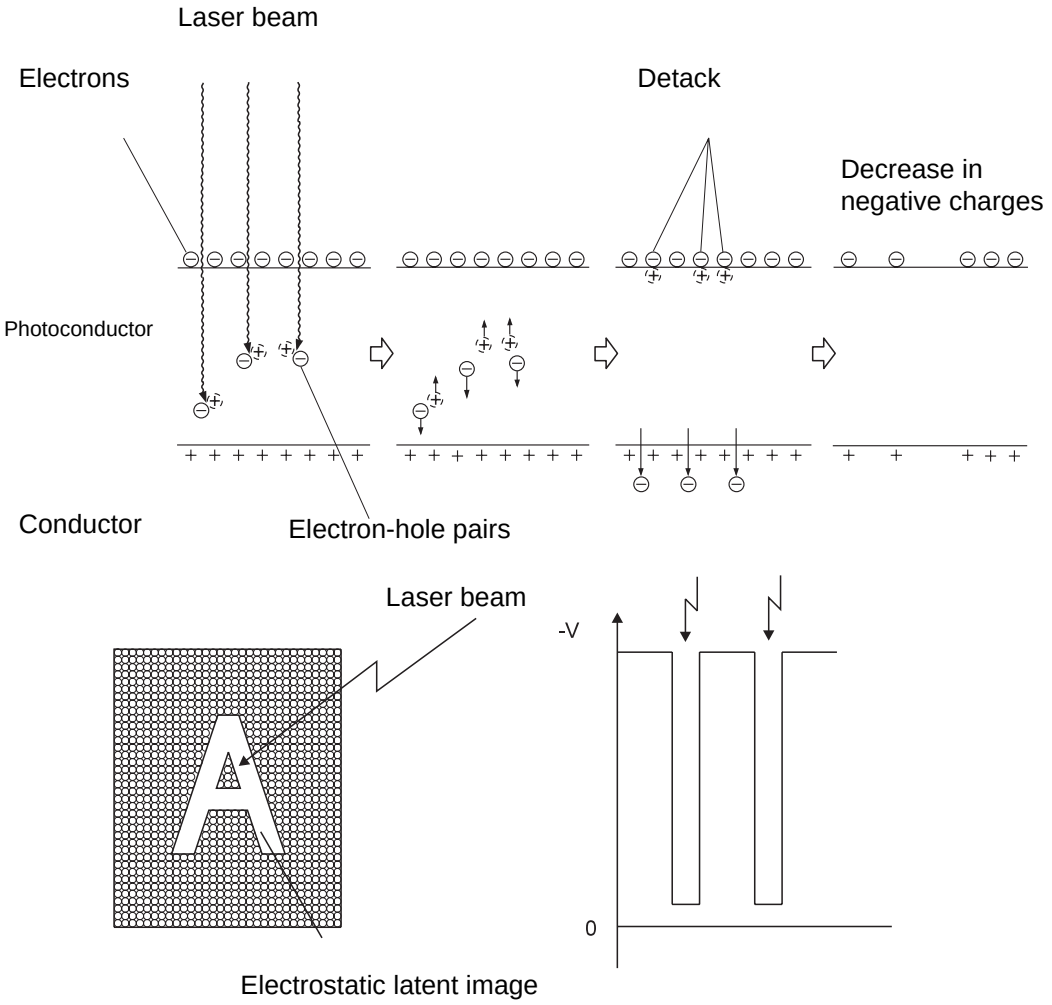
In the exposure step, the negatively charged drum surface is scanned by a laser beam. The laser diode of the ROS (Raster Output Scanner) passes through a rotating polygon mirror (6 facets) and lens scanning the drum from one end to the other.

The radiation of the laser beam varies according to a video signal from the PWBA ESS.

The laser beam shot at the drum excites electrons directed to the photo conductor. As a result, electron-hole pairs are induced in the photoconductive layer. Since electrons are moved toward the body inside the drum by the electric field, the electron-hole pairs move to the surface of the photoconductive layer. Negative charges in the portion decrease, thus creating an invisible electrostatic latent image there.

Toner particles are adsorbed onto this electrostatic latent image in the next step. Thus, the image is developed. The toner particles adsorbed to the drum are attracted to positive charges supplied by the BTR, and are transferred to the paper. The drum is sent for detack and cleaning steps.

- Electrostatic latent image formed on drum



In the cleaning step, the remaining toner is removed from the drum surface. The drum surface is prepared for the next cycle.

The toner is scraped off the drum surface by a cleaning blade.

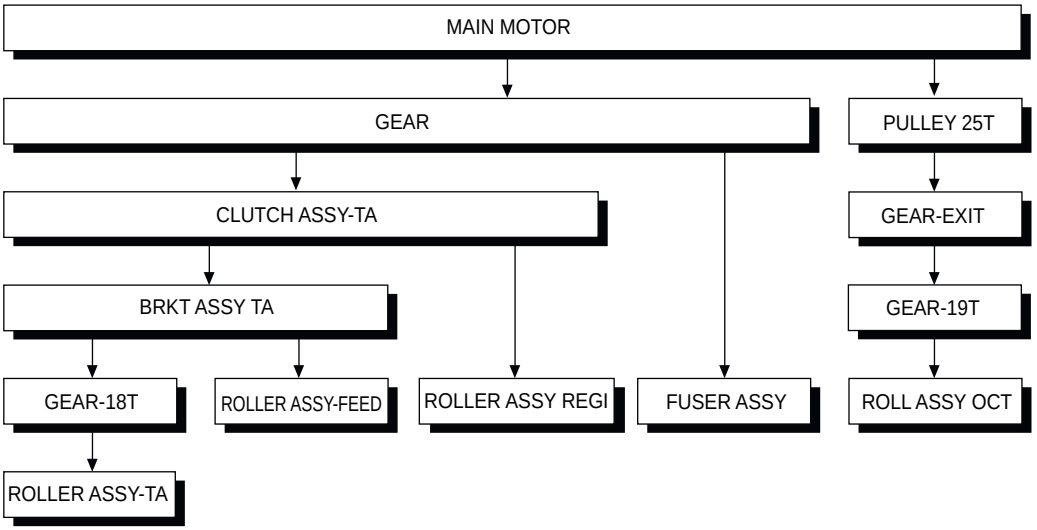
NOTE **The toner scraped off in the cleaning step is collected in a recovery toner compartment partitioned from unused toner. The transfer rate is normally more than 90%, but varies depending on the image coverage range and environmental conditions such as temperature and humidity. The used toner cannot be reused.**

NOTE **When the printing step is started, the whole drum surface is scanned with a laser beam. If charges generated in the previous step remain on the drum surface, they are completely removed. At the beginning and end of the continuous printing step, a negative high voltage is applied to the BTR. If toner particles adhere to the BTR in the previous printing step, the toner particles are returned to the drum surface. In this way, the surface of the BTR is cleaned.**

Driving Force Transmission Path

Main Motor

The rotating force of the MAIN MOTOR is transmitted through the GEAR and the PULLEY 25T to components that need mechanical driving force as shown in the following flow.



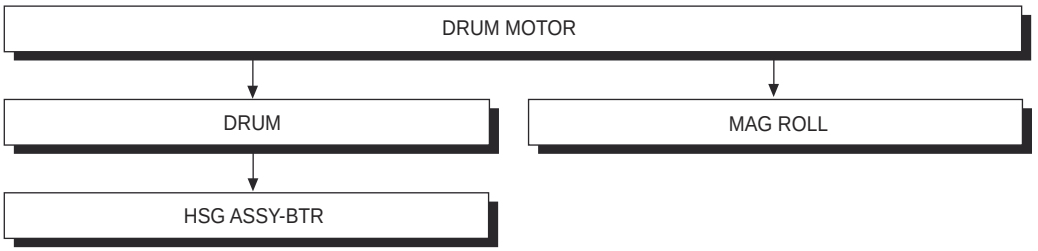
The driving force transmitted to the GEAR drives the ROLLER ASSY-TA, ROLLER ASSY-FEED, ROLLER ASSY REGI, FUSER ASSY, and ROLL ASSY OCT through the clutch and gears.

The driving force transmitted to the PULLEY 25T drives the EXIT1 (ROLL ASSY-OCT) through the gears.

The driving force transmitted to the FUSER ASSY drives the Heat Roll.

Drum Motor

The rotating force of the DRUM MOTOR is transmitted through the gears to components that need mechanical driving force as shown in the following flow.

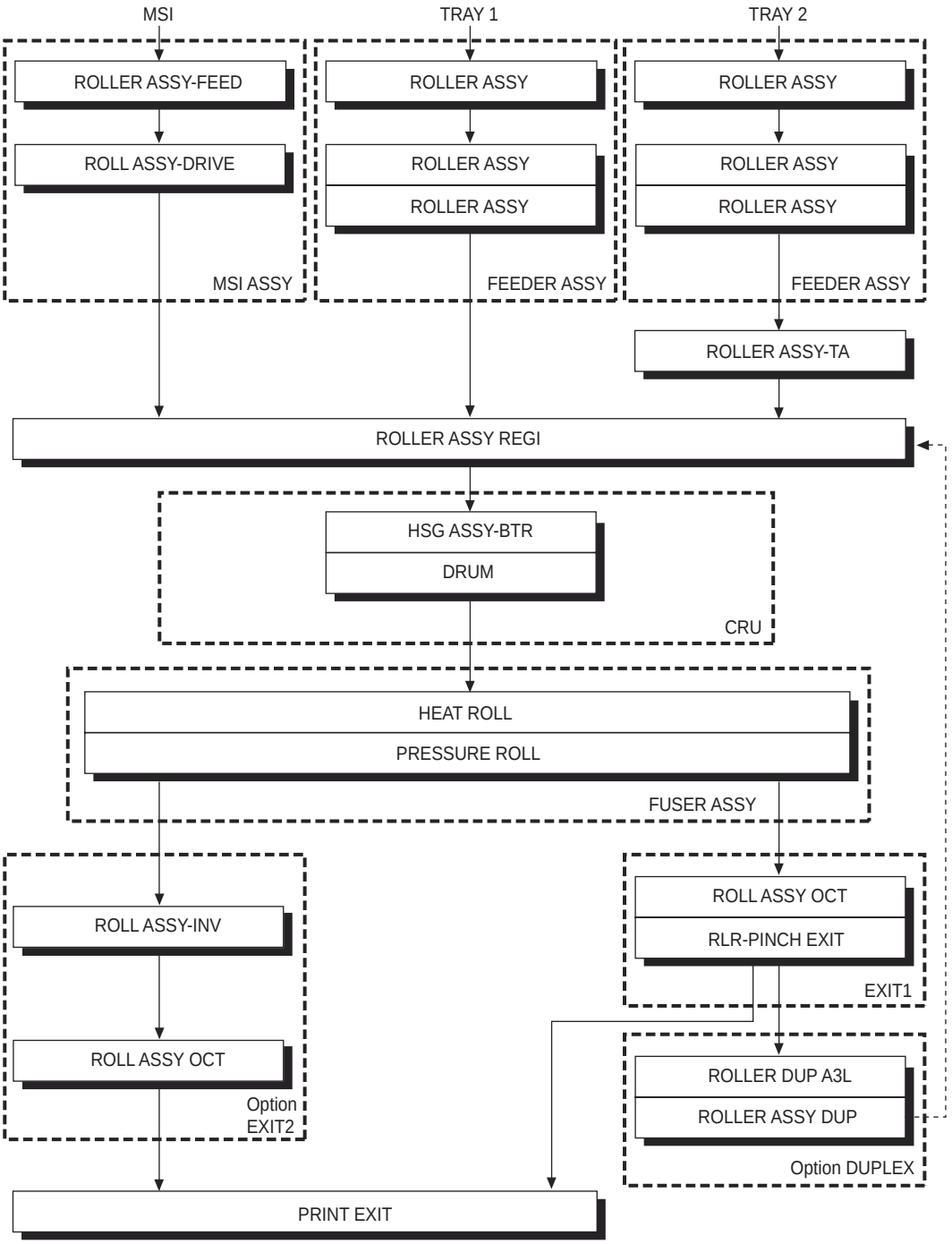


The driving force transmitted to the CRU drives the DRUM. The driving force is then transmitted to the BTR by direct contact with the DRUM.

Paper Transport

Paper Transport Path

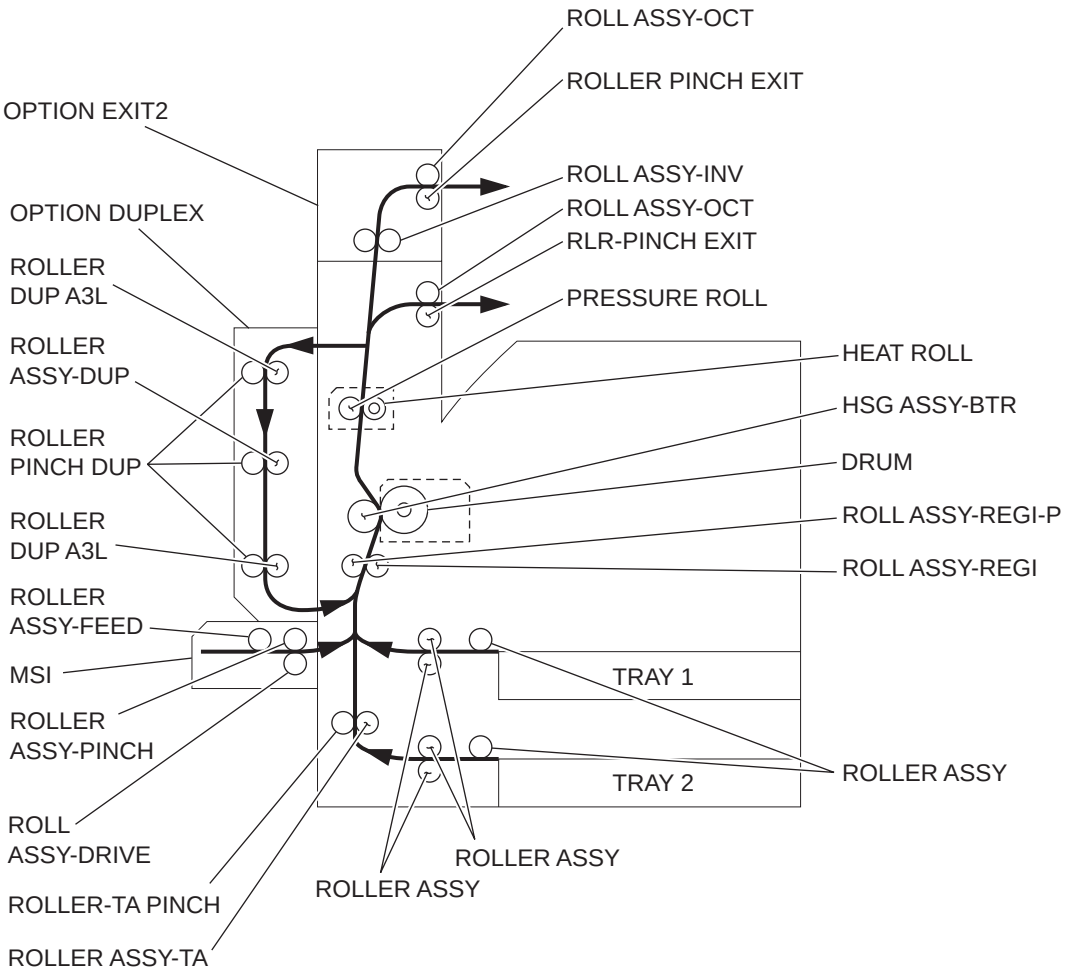
Paper is supplied from the MPF, Tray1 or Tray2, and is transported to the printer along the paper transport path shown below.



Layout of Paper Transport Path

The following is a cross section of the FIO laser printer, showing main components directly associated with the paper path and transport.

- Main components associated with transport of paper



Functions of Main Components

This chapter describes the functions of the main components of the FIO laser printer.

4.1 Paper Cassette

4.2 Paper Feeder

4.3 MPF

4.4 Xero

4.5 Fuser

4.6 Drive

4.7 Electrical Components and Rollers

Paper Cassette

It is necessary to adjust the FRONT SIDE GUIDE ASSY, REAR SIDE GUIDE and END GUIDE of the Paper Cassette to match the paper size.

FRONT SIDE GUIDE ASSY and REAR SIDE GUIDE

The FRONT SIDE GUIDE ASSY can be adjusted to different paper sizes by moving it to the front or rear. These guides come into contact with the front and rear edges of the paper and hold it in position.

The REAR SIDE GUIDE moves together with the FRONT SIDE GUIDE ASSY.

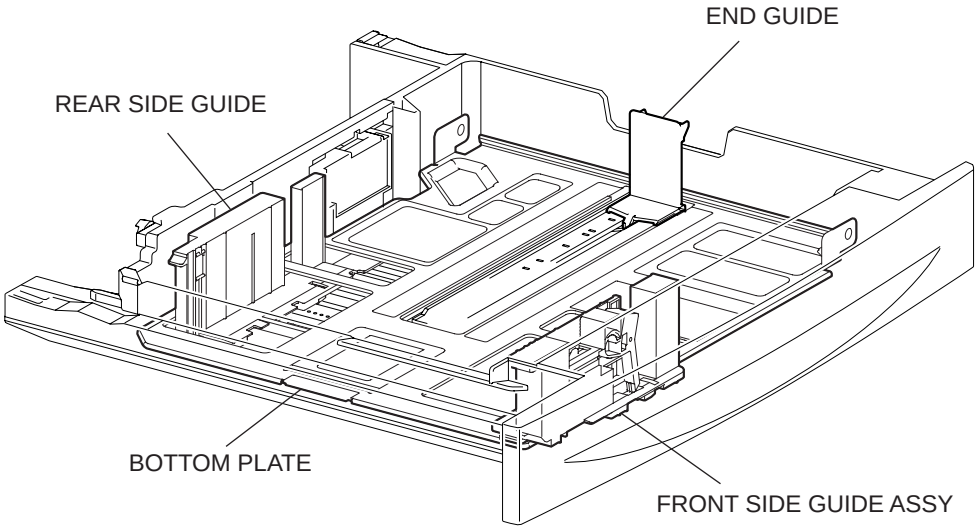
END GUIDE

The Paper Cassette is so designed that it can adapt to the paper length in the paper feed direction by moving the END GUIDE to the left or right.

BOTTOM PLATE

The force pushing up the BOTTOM PLATE is transmitted by the driving force of the MOTOR on the FEEDER ASSEMBLY to the LIFT UP SHAFT through the GEAR (13T/60T) and SECTOR GEAR (60T). The BOTTOM PLATE is pushed up by the rotation of the LIFT UP SHAFT, which causes the supplied paper to get in contact with the ROLLER ASSY (NUDGER).

- Paper Cassette



Detection of paper size

The paper size to which the cassette is set is transmitted to the switches S/W1 to S/W5 on the SWITCH ASSY P S by moving these guides. The paper size is detected by the ON/OFF information of these switches.

Paper sizes that can be automatically detected are as 5.1 Paper Size Control

Paper Feeder

Since the Tray1 and Tray2 are functionally equivalent in terms of the SWITCH ASSY P S, NO PAPER SENSOR, LEVEL SENSOR and PRE FEED SENSOR, only the components of one tray are described here.

The Paper Feeder is a mechanical unit for supplying paper from the Paper Cassette to the printer. The driving force from the TRAY 1/2 FEED LIFT UP MOTOR on the FEEDER ASSY is transmitted to the three ROLLER ASSY to feed paper.

When the ROLLER ASSY (NUDGER) picks up some sheets of paper and the remaining paper decreases, the ACTUATOR of the LEVEL SENSOR lowers accordingly. When the LEVEL SENSOR detects the lowering, the TRAY 1/2 FEED LIFT UP MOTOR is activated to lift the LIFT UP SHAFT and the BOTTOM PLATE is also lifted accordingly. Thus, the remaining paper is ready to be fed out.

TRAY 1/2 FEED LIFT UP MOTOR

This motor is activated to feed paper and to lift the BOTTOM PLATE. When feeding paper, it rotates forward to drive the ROLLER ASSY (NUDGER). When lifting the BOTTOM PLATE, it rotates reversely to drive the tray module gears to lift the LIFT UP SHAFT.

SWITCH ASSY P S

This SWITCH ASSY P S switches for setting the size of paper supplied from each Paper Cassette. A signal indicating the set size is transmitted as a voltage to the PWBA MCU F.

NO PAPER SENSOR

If paper runs out in a Paper Cassette, the ACTUATOR lowers and the flag of the ACTUATOR that has stayed in the NO PAPER SENSOR sensing area leaves there. Thus, the light

of the sensor is transmitted. When the sensing area is blocked (paper is present), the signal becomes OFF.

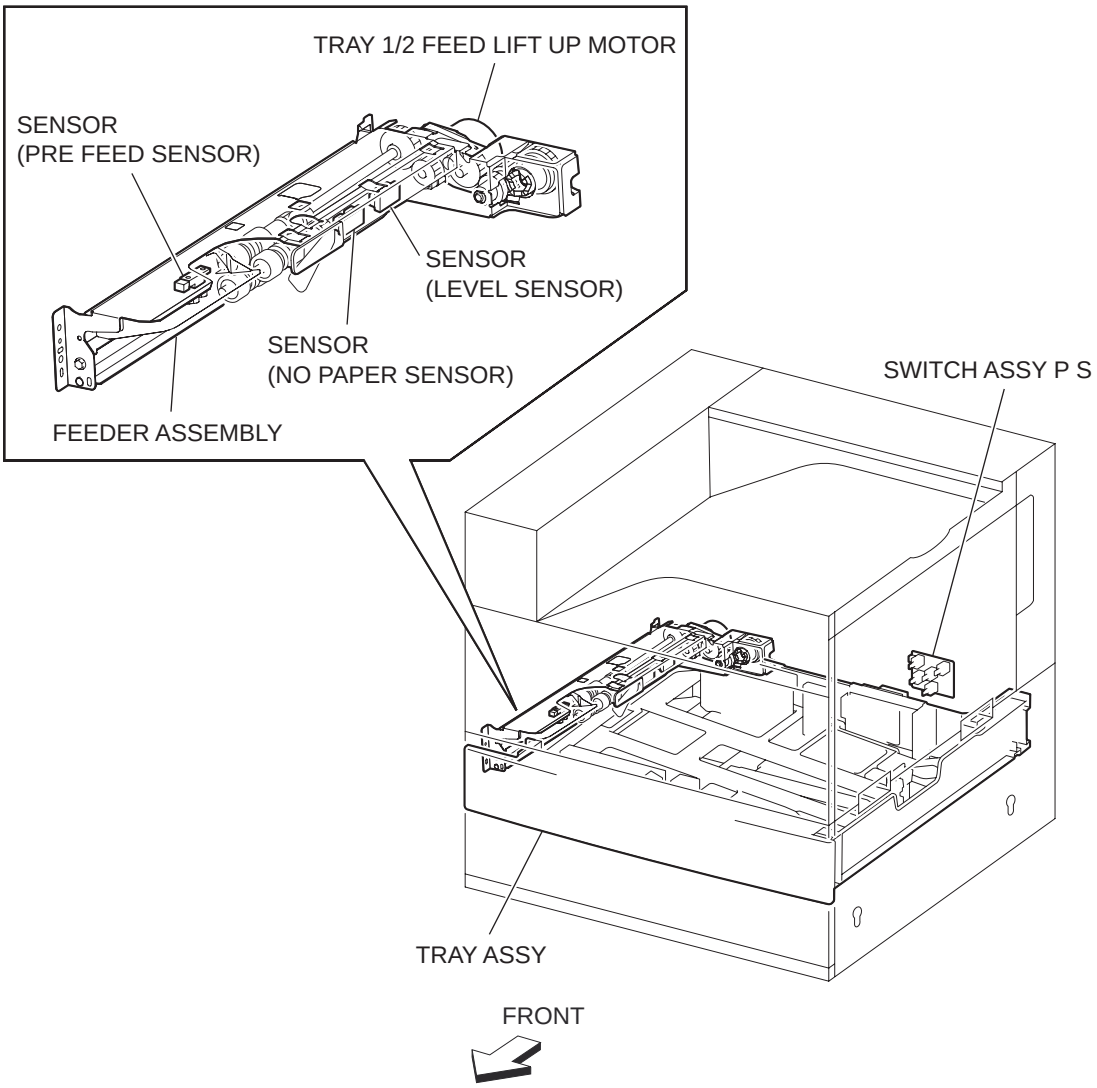
LEVEL SENSOR

This sensor detects, by the ACTUATOR position, whether paper in the Paper Cassette is lifted. When the flag of the ACTUATOR leaves the LEVEL SENSOR sensing area, the sensor detects that the paper has been lifted.

PRE FEED SENSOR

This sensor detects a paper jam in the Paper Cassette by the paper position and sensor ON/OFF time.

The sensor ON/OFF states can be monitored by paper passing through the PRE FEED SENSOR sensing area.



MPF

The MPF is a mechanical unit to feed manually supplied paper to the printer. The driving force from the MAIN MOTOR of the MAIN ASSY 242 is transmitted to the ROLLER ASSY-FEED to feed paper.

ROLLER ASSY-FEED

The ROLLER ASSY-FEED feeds paper set on the MPF.

ROLLER ASSY-DRIVE

The ROLLER ASSY-DRIVE feeds paper into the printer.

SOLENOID PICK UP

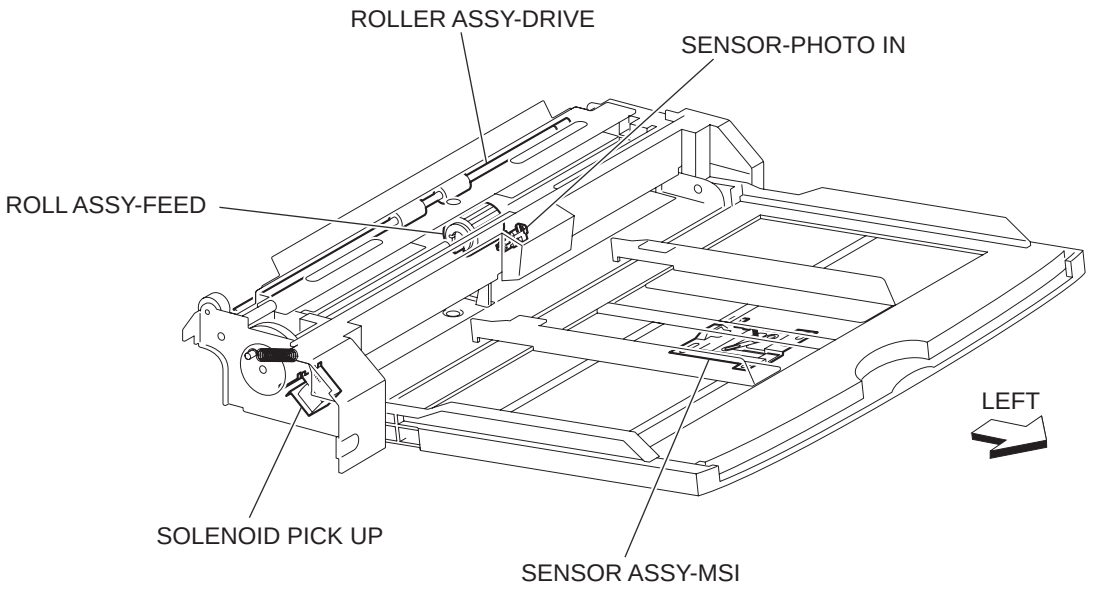
The SOLENOID PICK UP transmits the driving force from the MAIN MOTOR to the ROLLER ASSY-FEED.

SENSOR-PHOTO IN

The SENSOR-PHOTO IN detects whether paper is present on the MPF.

SENSOR ASSY-MPF

The SENSOR ASSY-MPF detects the width (length in the main scanning direction) of paper on the MPF.



Detecting paper size

The size of paper on the MPF is transmitted to the SENSOR ASSY-MPF by moving the MPF paper guide, and is determined by the PWBA MCU F.

Paper sizes that can be automatically detected are as follows:

Paper size	Width (mm)	Feed length (mm)
Side-Guide Stopper (min.)	84	-
Paper detection area (min.)	88.2	-
3.5” x 8.5”SEF	88.9	215.9
Post Card SEF	101.6	152.4
5.5” x 8.5” SEF	139.7	215.9
Postcard LEF	148	100
A6 LEF	148	105
A5 SEF	148	210
Post Card LEF	152.4	101.6
B6 LEF	182	128.5
B5 SEF	182	257
Monarch LEF	190.5	98.4
A5 LEF	210	148
A4 SEF	210	297
5.5” x 8.5” LEF	215.9	139.7
5.5” x 11” SEF (Letter)	215.9	279.4

5.5” x 13” SEF (Legal)	215.9	330.2
5.5” x 14” SEF (Legal)	215.9	355.6
DL LEF	220	110
C5 LEF	229	162
C4 SEF	229	324
Rectangular LEF	235	120
Com10 LEF	241.3	104.8
B5 LEF	257	182
B4 SEF	257	364
Executive LEF	266.7	184.2
16K LEF TFX(PRC)	267(270)	194(195)
8K SEF TFX(PRC)	267(270)	389(390)
8.5” x 11” SEF (Letter)	279.4	215.9
11” x 17” LEF	279.4	431.8
A4 LEF	297	210
A3 SEF	297	420
Stopper (max.)	303	-

Xero

CRU

The CRU is made up of the following main six components.

- Drum

  The Drum is composed of a photoconductive surface layer (an insulator in the dark but becomes conductor when receiving light) and a conductive inner layer (aluminum cylinder).

  The Drum retains electric charges on the surface in the dark, and becomes conductive when exposed to light.

- BCR

  The BCR (Bias Charge Roll) uniformly distributes negative charges on the Drum surface.

- Auger

  The Auger is a spiral mixer to stir toner supplied from the Toner Cartridge and carriers in the Xero/Deve Cartridge.

- Magnet Roll

  The Magnet Roll retains developer in a thin layer on its surface, and feeds toner to the gap between the Drum and the Magnet Roll.

- Finger

  The Finger is a mechanism to prevent paper from being caught.

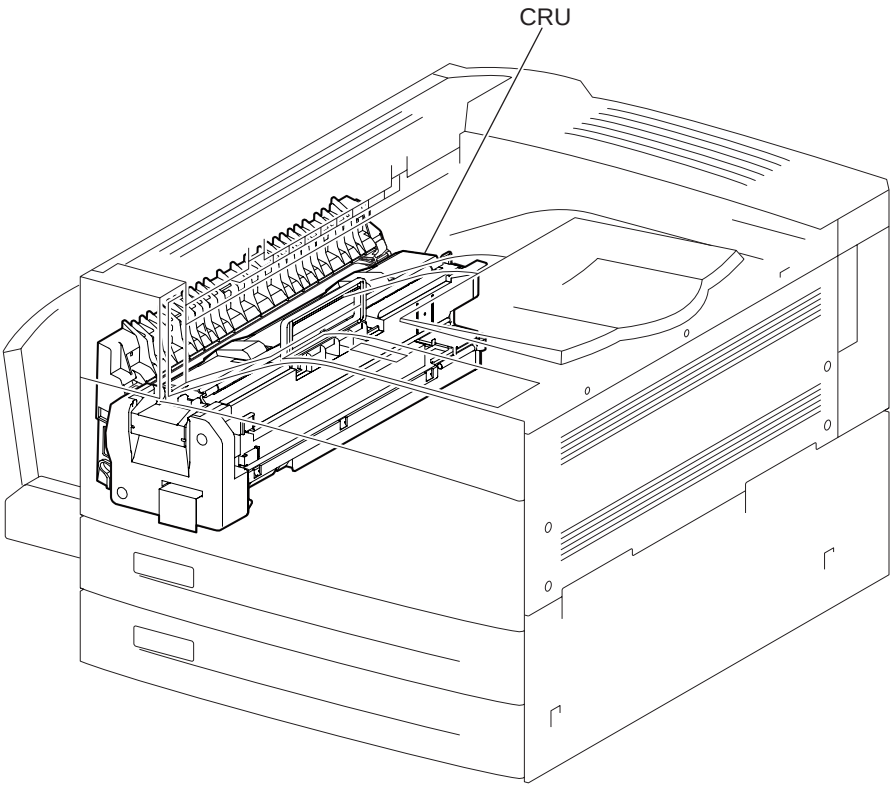
- Cleaning Blade

  The Cleaning Blade scrapes toner remaining after the transfer step off the drum surface.

HSG ASSY-BTR

The BTR of the HSG ASSY-BTR is driven by direct contact with the Drum of the CRU.

The BTR applies positive charges to the rear surface of the paper when the paper passes between the BTR and Drum. The negatively charged toner image is attracted by positive charges on the rear surface of the paper. Thus, the toner image is transferred from the drum surface to the paper surface.



ROS ASSY

The ROS ASSY-12 scans the drum surface with a laser beam. It consists of four main components: LD (Laser Diode) PWB, ROS MOTOR, POLYGON MIRROR, and SOS PWB.

(1) LD PWB

The LD PWB generates a laser beam with the two LDs of LD1 and LD2. The beam is turned ON or OFF according to a print data signal.

(2) ROS MOTOR / POLYGON MIRROR

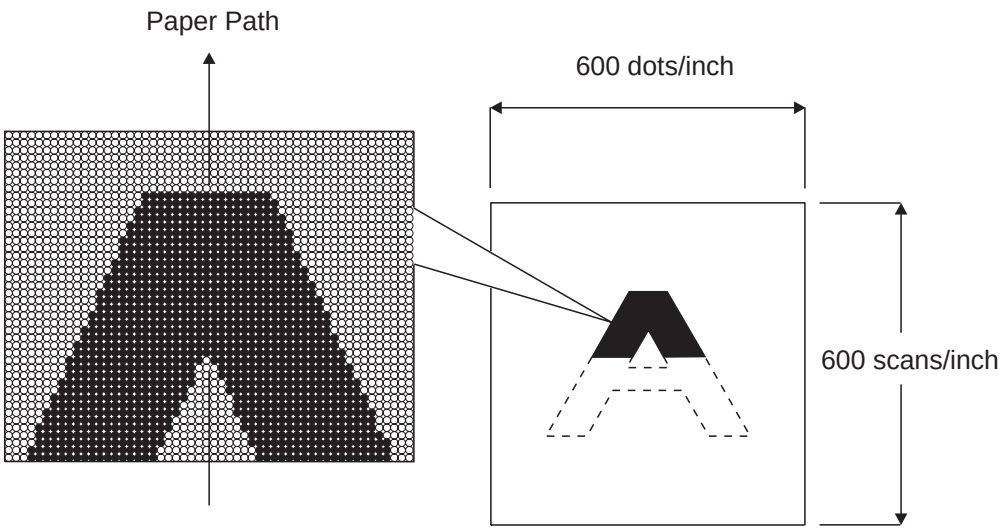
The Polygon Mirror is mounted to the shaft of the ROS Motor, and is rotated at a high speed by the ROS Motor. The mirror rotation shifts the incidence and reflection angles of a laser beam to scan the laser beam in the drum axial direction. The laser beam reached the Polygon Mirror passes through the Lens L1, Lens L2 and Window, and then arrives at the drum surface.

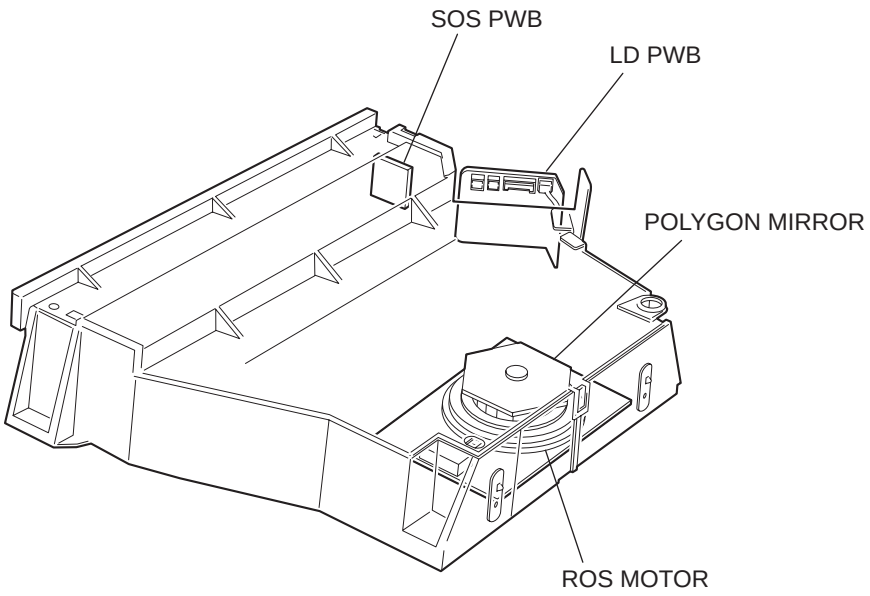
(3) SOS PWB

When a laser beam hits the SOS Sensor on the SOS PWB, the beam is converted to an electrical signal (SOS signal), and detects the initial position where a scan starts on each line.

When a laser beam is scanned across the drum surface from one end to the other while turning ON and OFF the beam, one line of latent image is created. If the scanning by the laser beam is repeated while rotating the drum, a two-dimensional image is created. The resolution in the scanning direction (from right to left) is determined by the rotational speed of the ROS Motor, depending on how quickly the laser is adjusted. The resolution in the process direction (from top to bottom) is determined by the rotational speed of the ROS Motor. (The higher the scanning speed becomes, the earlier scanning of the next row can be started.)

Conceptual diagram of image creation by scanning:





Fuser

Heat Roll

The Heat Roll is a hollow metal tube with its surface coated. This tube is heated by the inner Heater Rod. The heat is applied to the paper passing between the Heat Roll and Pressure Roll, fusing and fixing the toner on the paper.

Pressure Roll

The Pressure Roll is a metal shaft coated with sponge rubber. Pressure is applied to the paper between the Pressure Roll and Heat Roll, pressing the melted toner against the paper.

Heater Rod

The Heater Rod of the lamp comprises a quartz glass tube containing a heater coil. A terminal is mounted to the end of the Heater Rod via a harness. Three Heater Rods are provided: the Main Heater Rod to heat entire Heat Roll, and the Sub Heater Rods 1 and 2 to heat the central portion of the Heat Roll.

Thermostat

If the Heat Roll temperature exceeds the preset temperature, the Thermostat cuts off the circuits of the Main Heater Rod and Sub Heater Rods 1 and 2.

Center Thermistor

The Center Thermistor monitors the surface temperature of the paper-feed portion of the Heat Roll to control ON/OFF of the Main Heater Rod and Sub Heater Rods 1 and 2.

Rear Thermistor

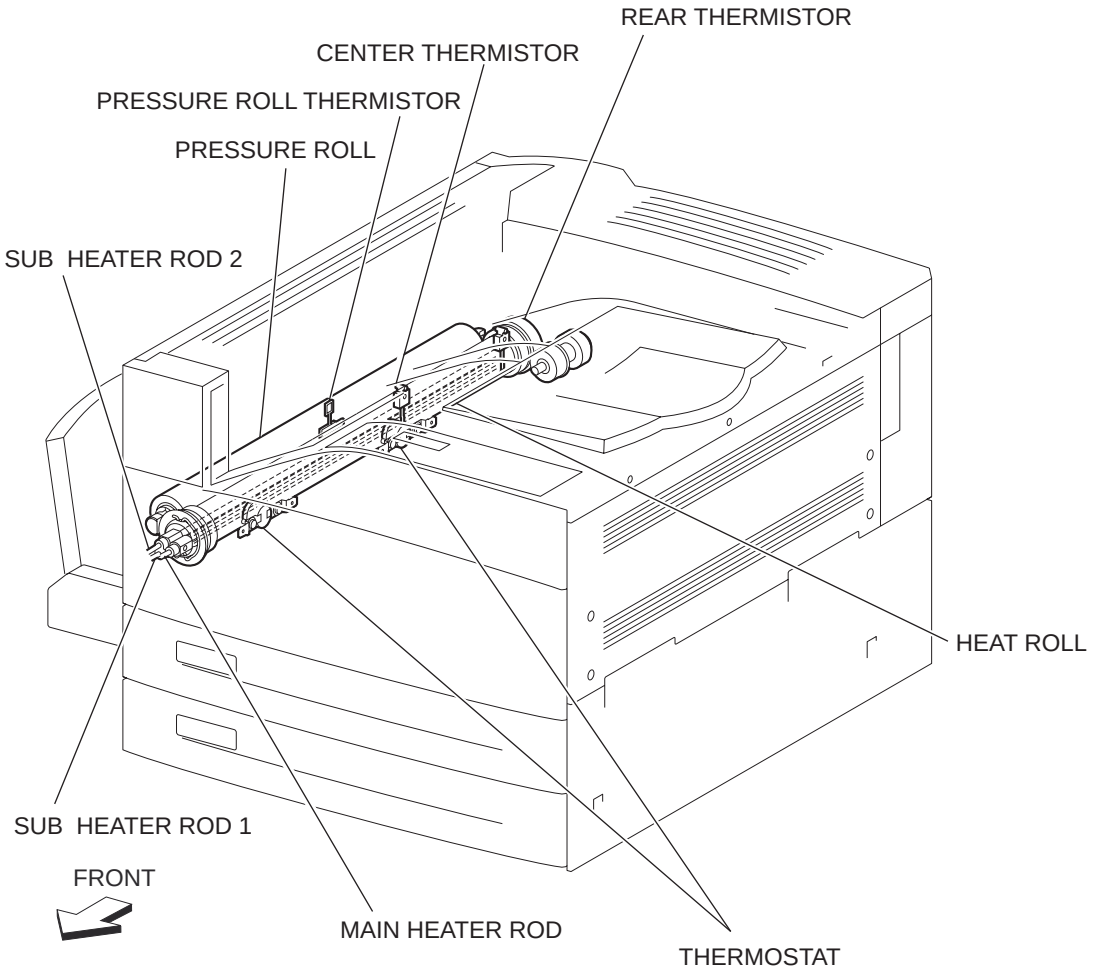
The Rear Thermistor monitors the surface temperature at rear side of the Heat Roll to switch the heater rod to use.

Pressure Roll Thermistor

The Pressure Roll Thermistor monitors the temperature of the Pressure Roll to control the idling time for fuser warm-up before printing.

Fuser Exit Sensor

The Fuser Exit Sensor detects the arrival of paper at the detection point in the exit area of the Fuser, and also detects the ejection of paper from this point.



Exit

The Exit1 is a component to eject printed paper from the printer to the Face Down Tray. With the optional Exit2 installed, it is also possible to eject paper to the Exit2 Face Down Tray by changing the orientation of the Gate-Exit 1 on the Exit1.

MOTOR ASSY 242

The MOTOR ASSY 242 drives the ROLL ASSY OCT that feeds paper to each tray. With the optional Duplex installed, this motor also has a function to reversely feed paper to the Duplex.

ROLL ASSY OCT

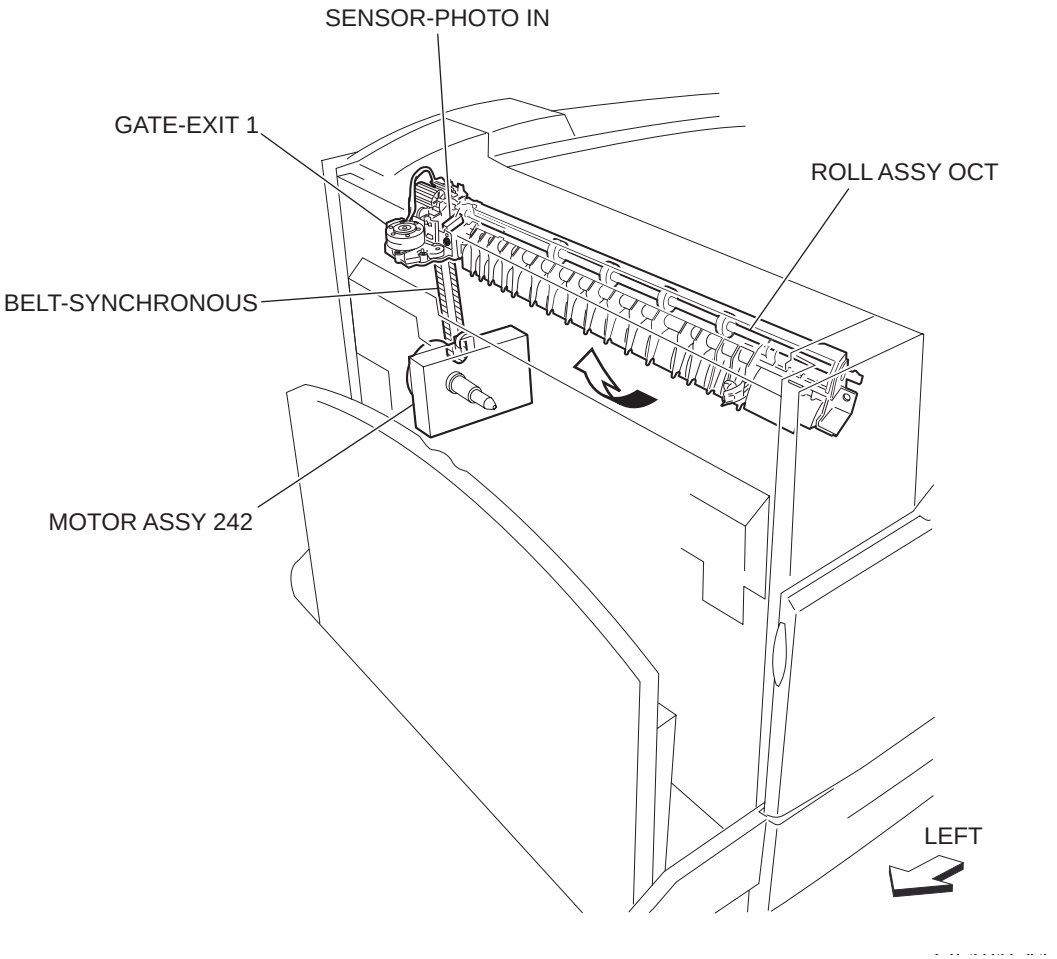
The ROLL ASSY OCT feeds printed paper from the Fuser to the Face Down Trays.

SENSOR-PHOTO IN

The SENSOR-PHOTO IN detects Exit1 Face Down Tray full by moving the ACTUATOR up and down.

GATE-EXIT 1

The GATE-EXIT 1 switches the paper transport path. When the GATE-EXIT 1 is lifted, paper is fed to the Exit1 Face Down Tray. When it is lowered, paper is fed to the Exit2 Face Down Tray.



Drive

MAIN ASSY 242

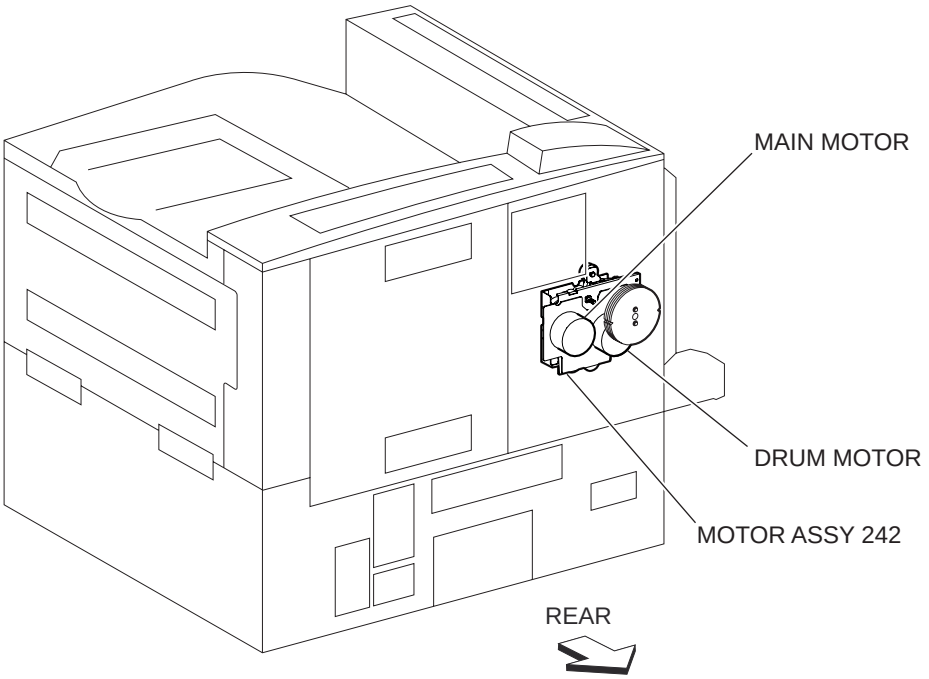
The MAIN ASSY 242, comprising the Main Motor, Fuser Motor and gears, transmits driving force to the components of the printer.

Main Motor

The Main Motor is a DC brushless motor to drive the ROLL ASSY OCT, FUSER ASSY, ROLL ASSY REGI, and ROLLER ASSY-TA.

Drum Motor

The Drum Motor is a DC brushless motor to drive the CRU Drum, Mag Roll and HSG ASSY-BTR.



Electrical Components and Controller

SWITCH-POWER

Turning ON/OFF the SWITCH-POWER supplies/cuts off the main power of the printer.

OUTLET MN

The OUTLET MN supplies the power to the Finisher directly from the main POWER UNIT.

SWITCH (24V Interlock Switch)

The SWITCH (24V Interlock Switch) is a safety switch to cut off a 24 VDC power supply from the POWER UNIT to the PSHV-Y2, PWBA MCU F and to the MOTOR ASSY 242, while the COVER ASSY FRONT and the COVER ASSY-LH are open.

SWITCH ASSY XERO INTLK (5V Interlock Switch)

The SWITCH ASSY XERO INTLK (5V Interlock Switch) is a safety switch to cut off a 5 VDC power supply from the POWER UNIT to the LD PWB of the ROS ASSY-12 while the CRU is removed.

SWITCH-I/L,CAB

The SWITCH-I/L,CAB detects open/close of the COVER ASSY LH LOW C.

FAN FUSER

The FAN FUSER discharges air from the printer to prevent excessive temperature increase.

POWER UNIT

The POWER UNIT generates low voltages (5 V and 3.3 V for logic circuits, 5 V for Laser Diodes, and 24 V for motors/clutches) from AC power. It also contains the Fuser Relay to feed/cut off AC power to the Heater Rod of the FUSER ASSY.

PSHV-Y2

The PSHV-Y2 generates AC power and a high DC voltage, and feeds them to the charging (BCR), development (Magnet Roll), transfer (BTR), and peeling (Detack Saw) units.

PWBA MCU F

The PWBA MCU F controls printing operation based on the communication with the Print Controller and on sensor/switch information. It also controls optional module boards.

PWBA ESS

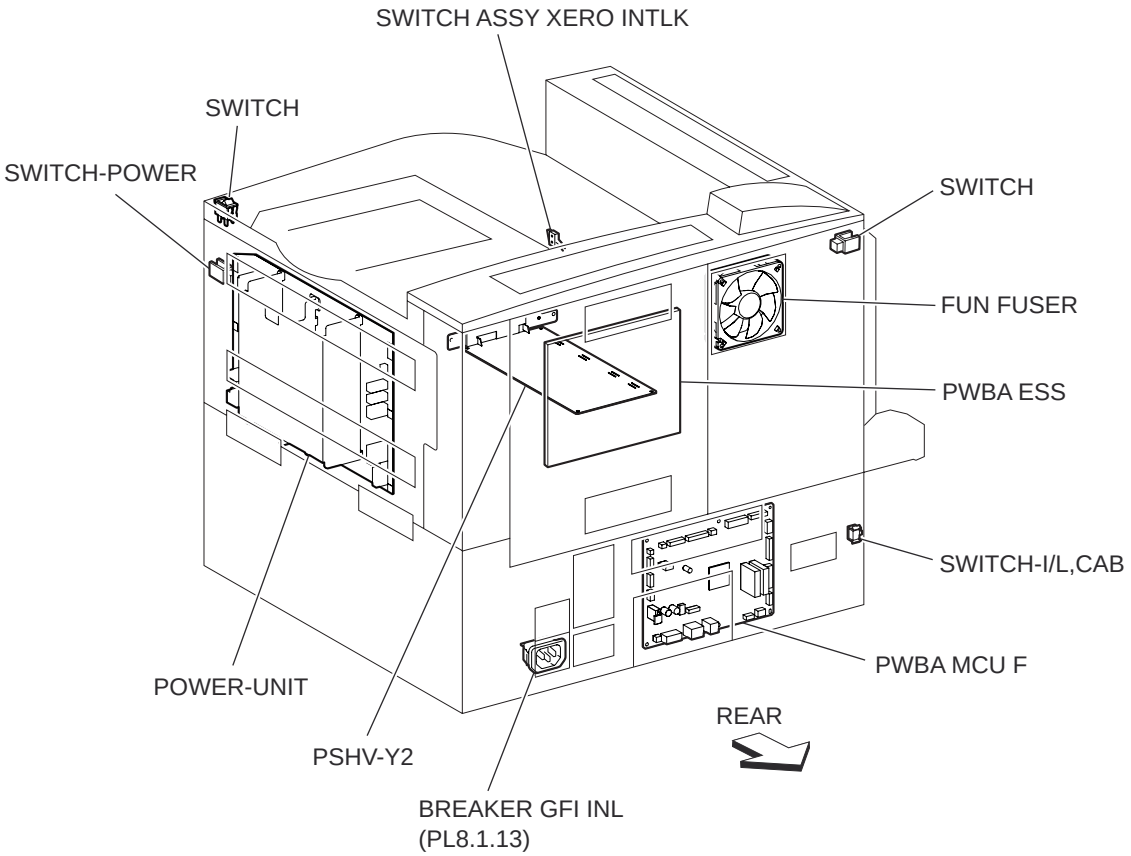
The PWBA ESS connected to the PWBA MCU F controls the entire system.

ROLLER ASSY-TA

The ROLLER ASSY-TA feeds paper from the Tray2 or an optional tray to the CRU or Fuser.

ROLLER ASSY REGI

The ROLLER ASSY REGI feeds paper from the Tray2, optional tray or MPF to the CRU or Fuser.



Control

Paper Size Control

Paper Cassette Feeding

The following table gives the states (ON/OFF) of the switches on the Switch ASSY P S, corresponding to the paper sizes of the Paper Cassette.

NOTE The switches on the Switch ASSY P S are denoted by “S/W2”, “S/W4”, “S/W3”, “S/W5”, and “S/W1” respectively from the left side.

Paper Size	ANALOG SWITCH				DIGITAL SWITCH
	S/W1	S/W2	S/W3	S/W4	S/W5
No Cassette	OFF	OFF	OFF	OFF	OFF
5.5" x 8.5"SEF/A5 SEF	OFF	OFF	ON	OFF	OFF
B5 SEF	OFF	OFF	ON	ON	ON
8.5" x 13"SEF	OFF	ON	OFF	ON	OFF
8.5" x 14"SEF	OFF	ON	OFF	ON	ON
A4 SEF	OFF	ON	ON	OFF	OFF
8.5" x 11"SEF	OFF	ON	ON	OFF	ON
A4 LEF	ON	OFF	ON	OFF	OFF

A3 SEF	ON	OFF	ON	ON	OFF
B5 LEF/Executive LEF	ON	ON	OFF	OFF	ON
8K SEF(TFX/GCO)	ON	ON	OFF	ON	OFF
B4 SEF	ON	ON	OFF	ON	ON
8.5" x 11"LEF	ON	ON	ON	OFF	OFF
16K LEF(TFX/GCO)	ON	ON	ON	OFF	ON
11" x 17"LEF	ON	ON	ON	ON	ON

ROS Control

Rotation of ROS Motor

The ON/OFF control of the ROS Motor is performed according to the mode of operation as shown below.

Operation mode	ROS Motor ON/OFF
Standby mode	Always OFF
Print mode	Turns ON upon receiving the signal from the controller, and turns OFF after a preset time has passed from the end of printing. Also turns OFF if a print command is not received within 30 seconds from the reception of the signal.
Sleep mode	Always OFF

Determination of ROS Ready

The ROS goes into ready state after the specified period passes since the reception of the ROS MPA start signal and the SOS cycle exceeds the reference value.

ROS Reference Value

ROS reference value	Description
Ready reference value	SOS signal interval (equivalent to 98% or more of the rated rpm of the ROS Motor)
Fail reference value	SOS signal interval (less than 98% of the rated rpm of the ROS Motor)

Fuser Control

Fuser Control Method

The ON/OFF control of the Main/Sub Heater Rods is performed based on the Fuser control temperature. The Fuser transits between the five states (Warm UP, Ready, Standby, Print, and Low Power) depending on the Heat Roll surface temperature or printer conditions.

The Fuser temperature control starts when the Fuser Ready in the POWER UNIT is turned ON after a preset time period has passed from power ON. If a failure occurs, the Heater Rods are turned OFF, then the Fuser Ready is turned OFF, and then the Fuser temperature control is stopped.

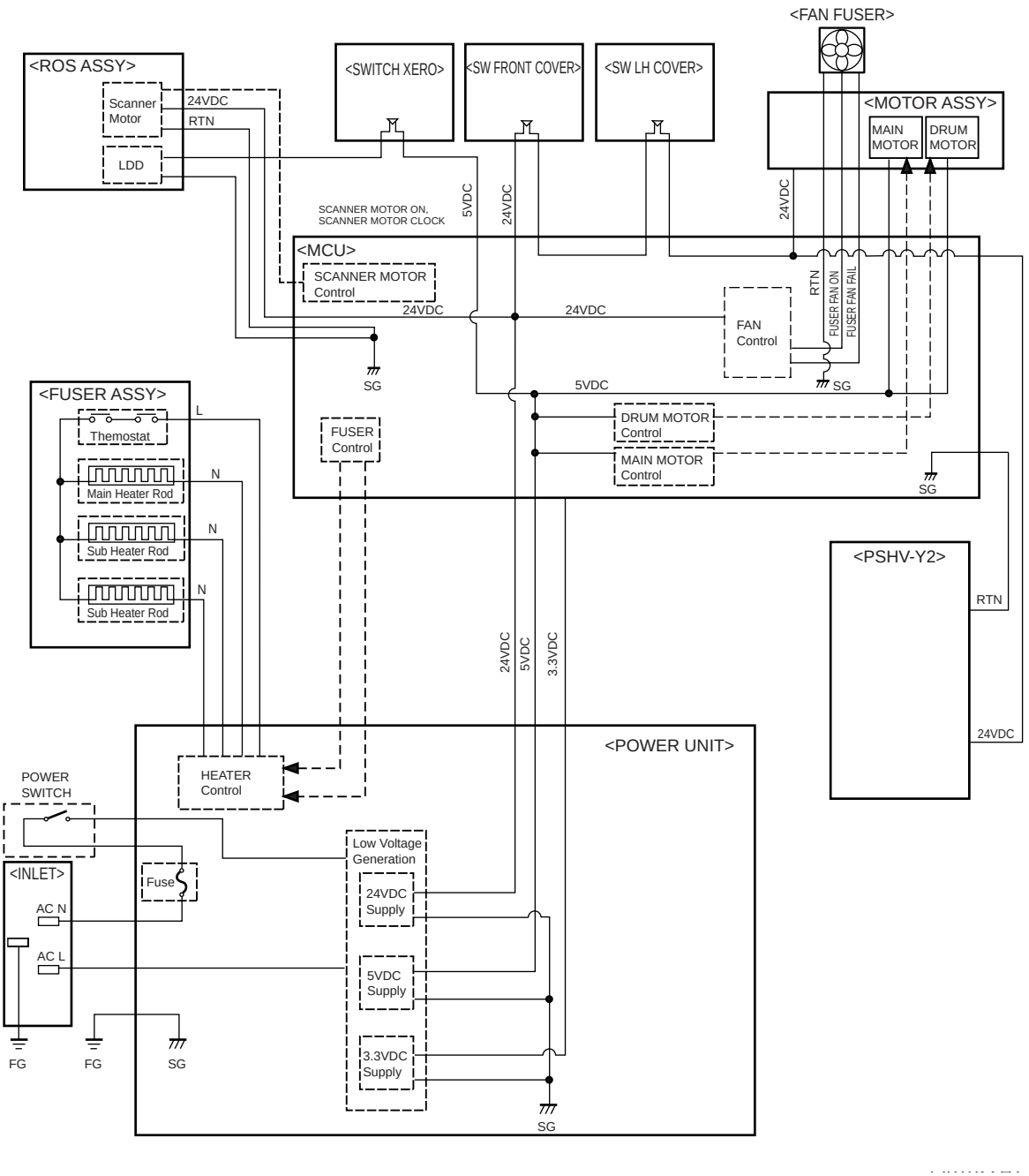
Main/Sub Heater Rods ON/OFF Control

The Center and Rear Thermistors detect the Heat Roll surface temperature (Fuser temperature) to regulate the temperature at the target control temperature by turning ON or OFF the Main/Sub Heater Rods.

Fuser Warm-up

The Fuser warm-up starts at the time of power ON, interlock open/close, jam reset, or return from the Low Power mode, and ends when the Ready temperature is attained, when a failure occurs, or when executing Diagnosis.

Schematic Diagram of Safety System

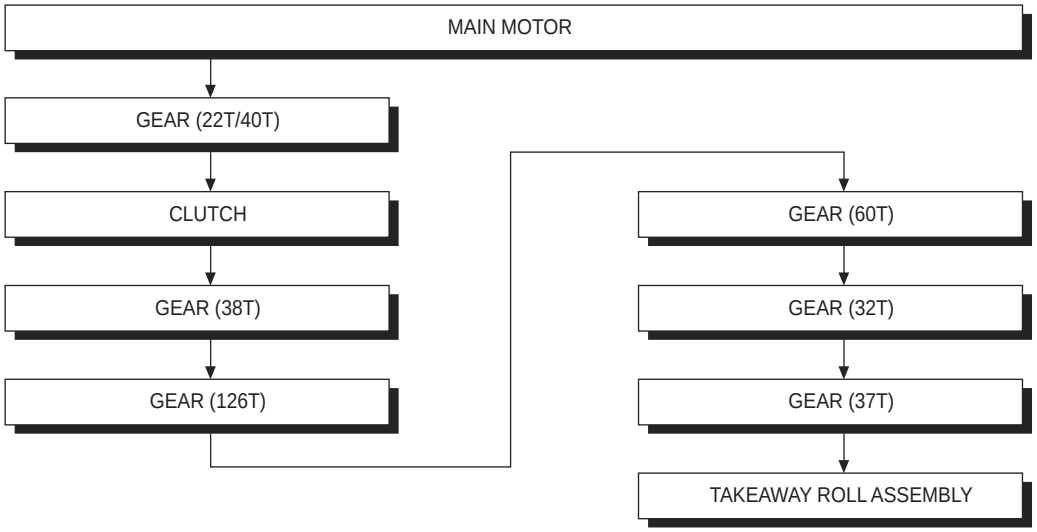


1000 Sheet Feeder

Driving Force Transmission Path

Main Motor

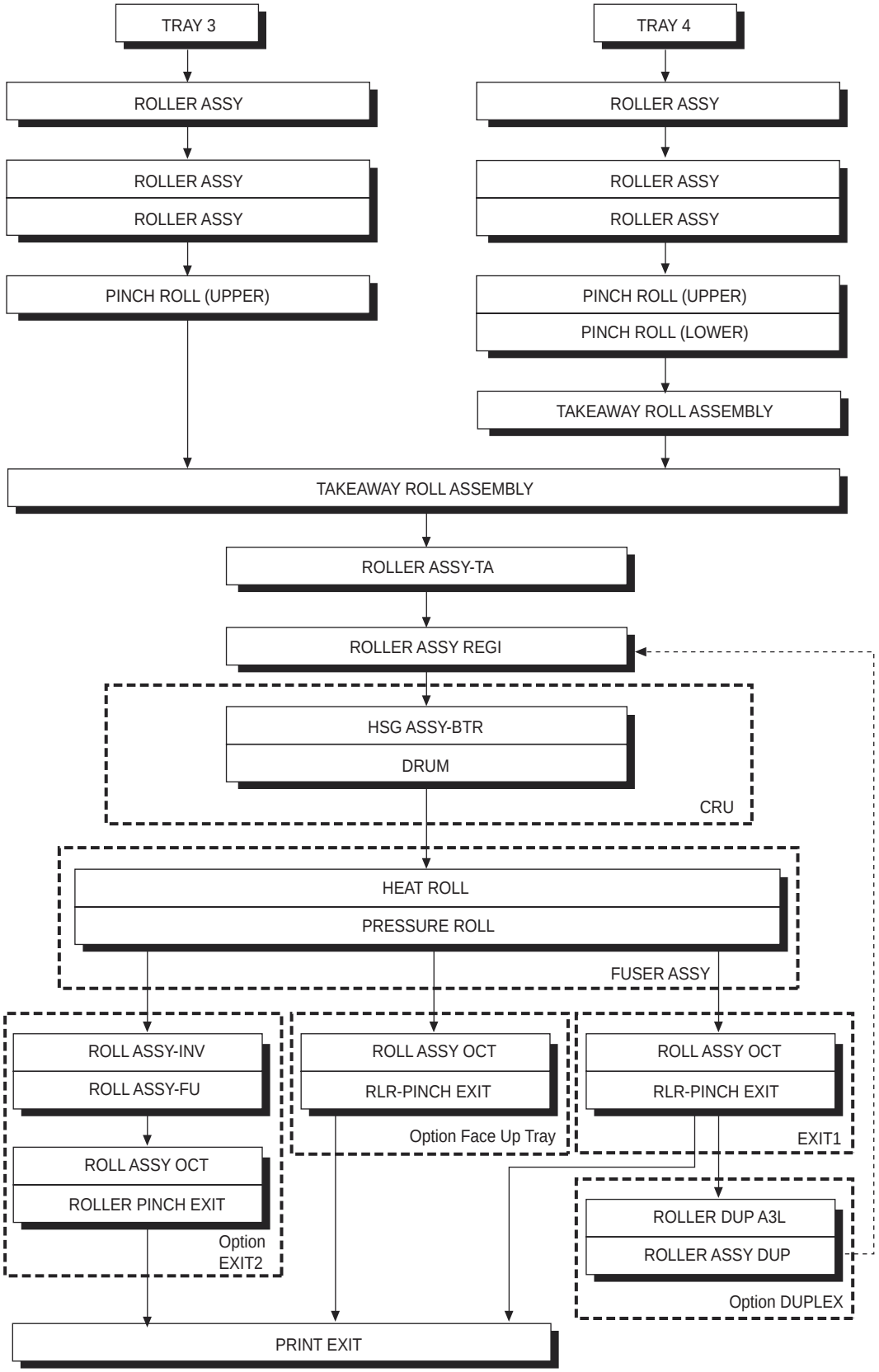
The rotating force of the MAIN MOTOR is transmitted through the gears to components that need mechanical driving force as shown in the following flow.



Paper Transport

Paper Transport Path

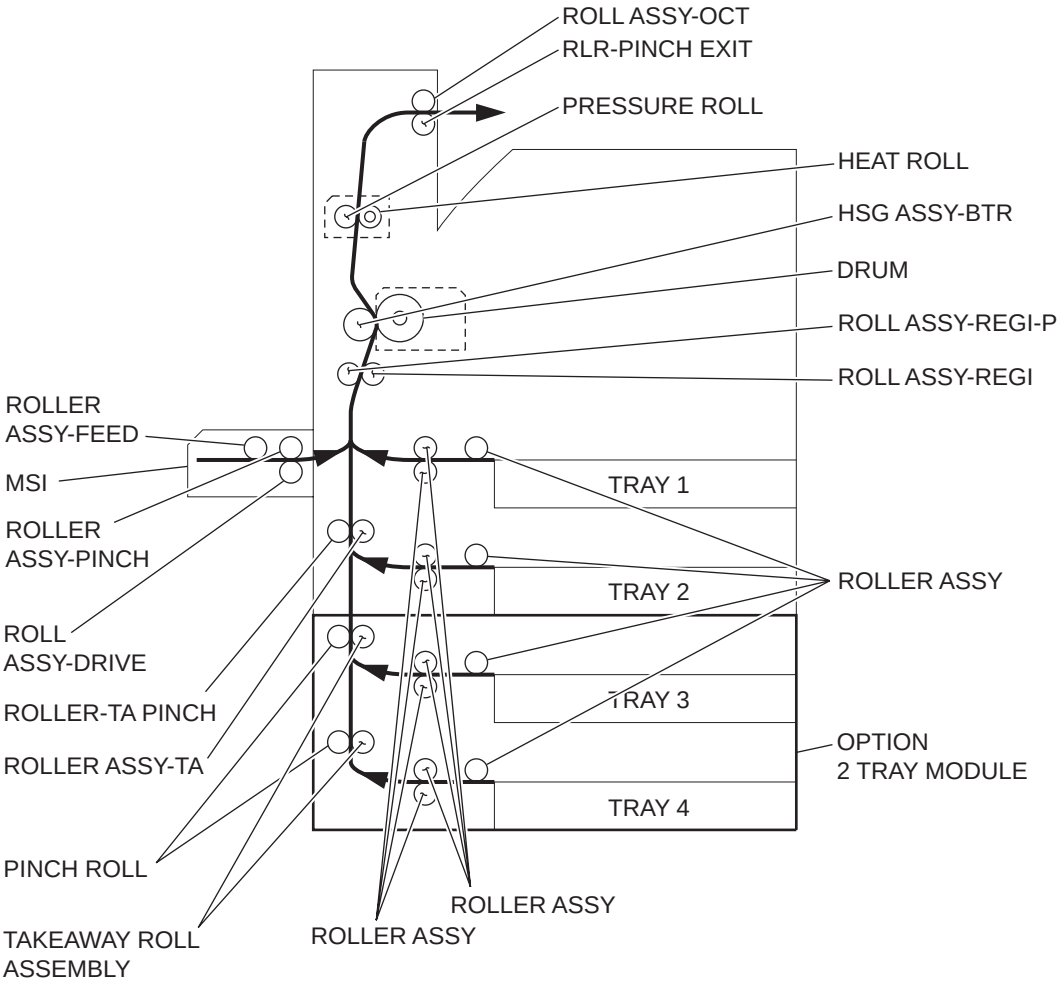
Paper is supplied from the Tray3 or Tray4, and is transported to the printer along the paper transport path shown below.



Layout of Paper Transport Path

The following is a cross section of the FIO laser printer and the optional 2 TRAY MODULE, showing main components directly associated with the paper path and transport.

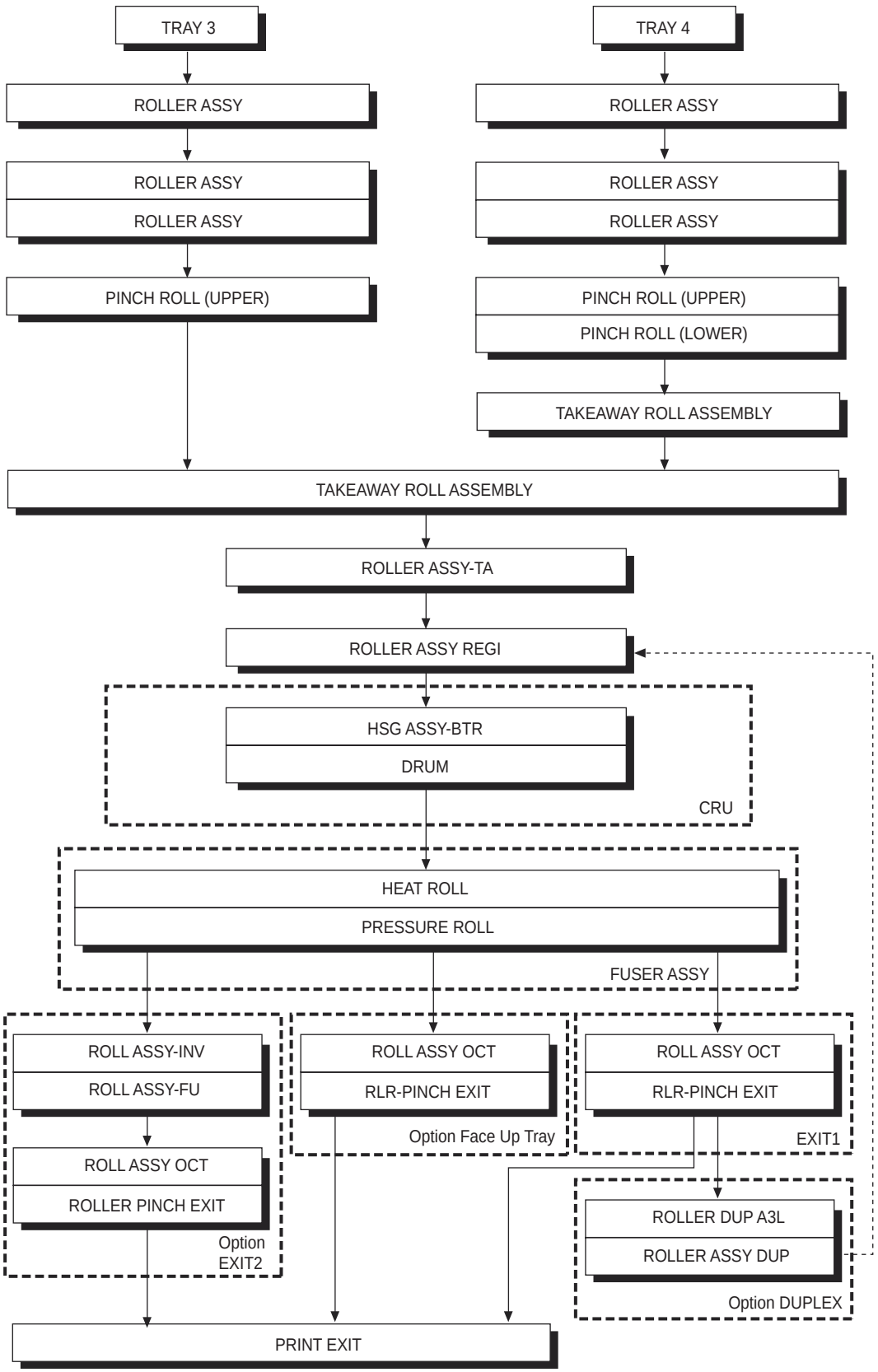
- Main components associated with the paper transport



Paper Transport

Paper Transport Path

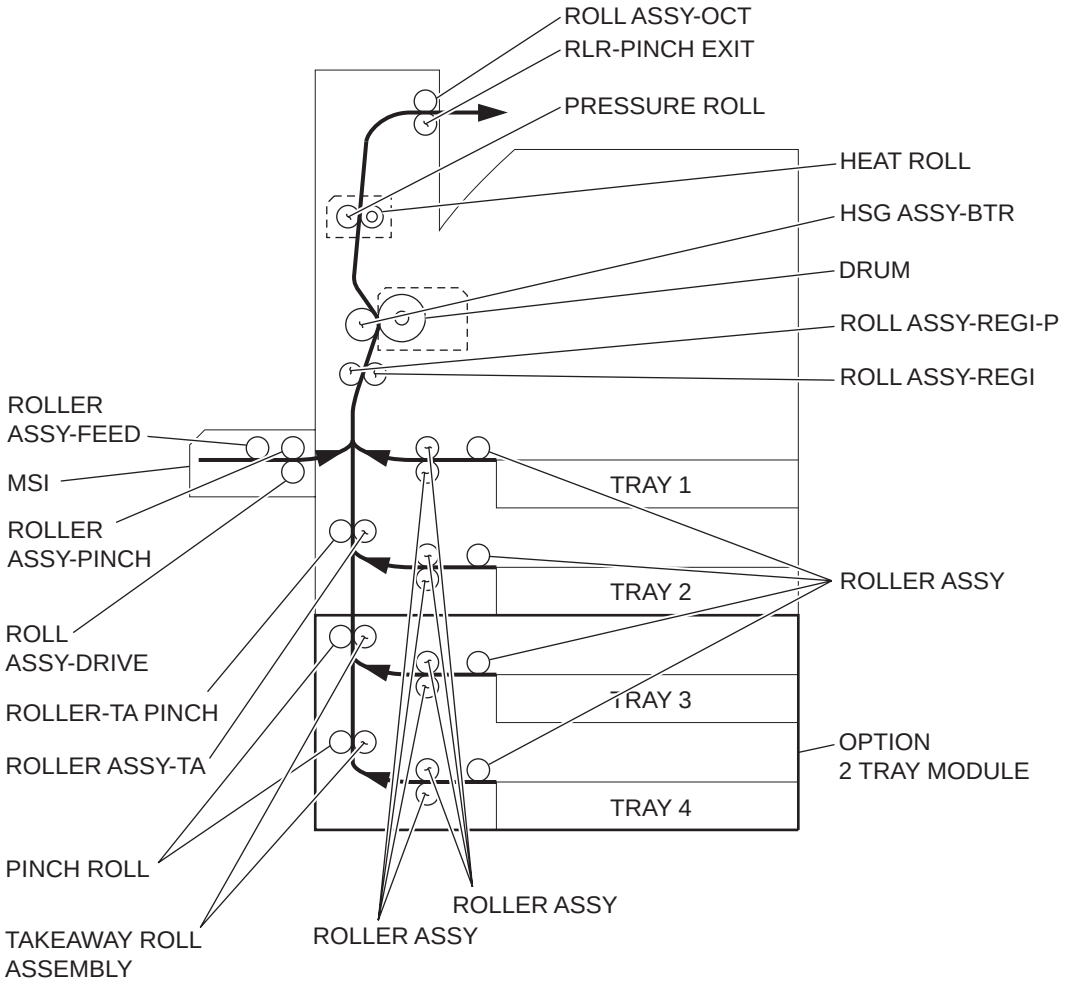
Paper is supplied from the Tray3 or Tray4, and is transported to the printer along the paper transport path shown below.



Layout of Paper Transport Path

The following is a cross section of the FIO laser printer and the optional 2 TRAY MODULE, showing main components directly associated with the paper path and transport.

- Main components associated with the paper transport



Functions of Main Components

When the optional 2 TRAY MODULE is installed under the printer, additional trays are available.

The following chapters outline the functions of the main components of the 2 TRAY MODULE.

10.1 Paper Cassette

10.2 Paper Feeder

10.3 Main Components

Paper Cassette

It is necessary to adjust the FRONT SIDE GUIDE ASSY, REAR SIDE GUIDE and END GUIDE on the Paper Cassette to match the paper size.

FRONT SIDE GUIDE ASSY and REAR SIDE GUIDE

The FRONT SIDE GUIDE ASSY can be adjusted to different paper sizes by moving it to the front or rear. These guides come into contact with the front and rear edges of the paper and hold it in position.

The REAR SIDE GUIDE moves together with the FRONT SIDE GUIDE ASSY.

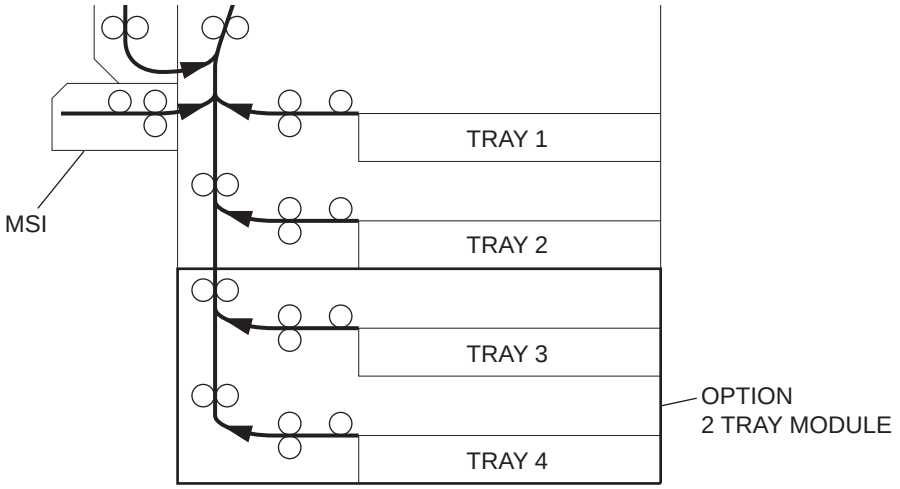
END GUIDE

The Paper Cassette is so designed that it can adapt to the paper length in the paper feed direction by moving the END GUIDE to the left or right.

BOTTOM PLATE

The force pushing up the BOTTOM PLATE is transmitted by the driving force of the MOTOR on the FEEDER ASSEMBLY to the LIFT UP SHAFT through the GEAR (13T/60T) and SECTOR GEAR (60T). The BOTTOM PLATE is pushed up by turning the LIFT UP SHAFT, which causes the supplied paper to get in contact with the ROLLER ASSY (NUDGER).

- Paper Cassette



Detection of paper size

The paper size to which the cassette is set is transmitted to the switches S/W1 to S/W5 on the TRAY 3/4 PAPER SIZE SWITCH by moving these guides. The paper size is detected by the ON/OFF information of these switches.

Paper sizes that can be automatically detected are as 4.1 Paper Size Control:

Paper Feeder

Since the Tray3 and Tray4 are functionally equivalent in terms of the TRAY 3/4 PAPER SIZE SWITCH, NO PAPER SENSOR, LEVEL SENSOR and PRE FEED SENSOR, only the components of one tray are described here.

The Paper Feeder is a mechanical unit for supplying paper from the Paper Cassette to the printer. The driving force from the TRAY 1/2 FEED LIFT UP MOTOR on the FEEDER ASSY is transmitted to the three ROLLER ASSYs to feed paper.

When the ROLLER ASSY (NUDGER) picks up some sheets of paper and the remaining paper decreases, the ACTUATOR (SUPPORT ASSEMBLY) of the LEVEL SENSOR lowers accordingly. When the LEVEL SENSOR detects the lowering, the TRAY 1/2 FEED LIFT UP MOTOR is activated to turn the LIFT UP SHAFT and the BOTTOM PLATE is also lifted accordingly. Thus, the remaining paper is ready to be fed out.

TRAY 1/2 FEED LIFT UP MOTOR

This motor is activated to feed paper and to lift the BOTTOM PLATE. When feeding paper, it rotates forward to drive the ROLLER ASSY (NUDGER). When lifting the BOTTOM PLATE, it rotates reversely to drive the tray module gears to turn the LIFT UP SHAFT.

TRAY 3/4 PAPER SIZE SWITCH

This TRAY 3/4 PAPER SIZE SWITCH switches for setting the size of paper supplied from each Paper Cassette. A signal indicating the set size is transmitted as a voltage to the PWBA MCU F.

NO PAPER SENSOR

If paper runs out in the Paper Cassette, the ACTUATOR lowers and the flag of the ACTUATOR that has stayed in the NO PAPER SENSOR sensing area leaves there. Thus, the light of the sensor is transmitted. When the sensing area is blocked (paper is present), the signal becomes OFF.

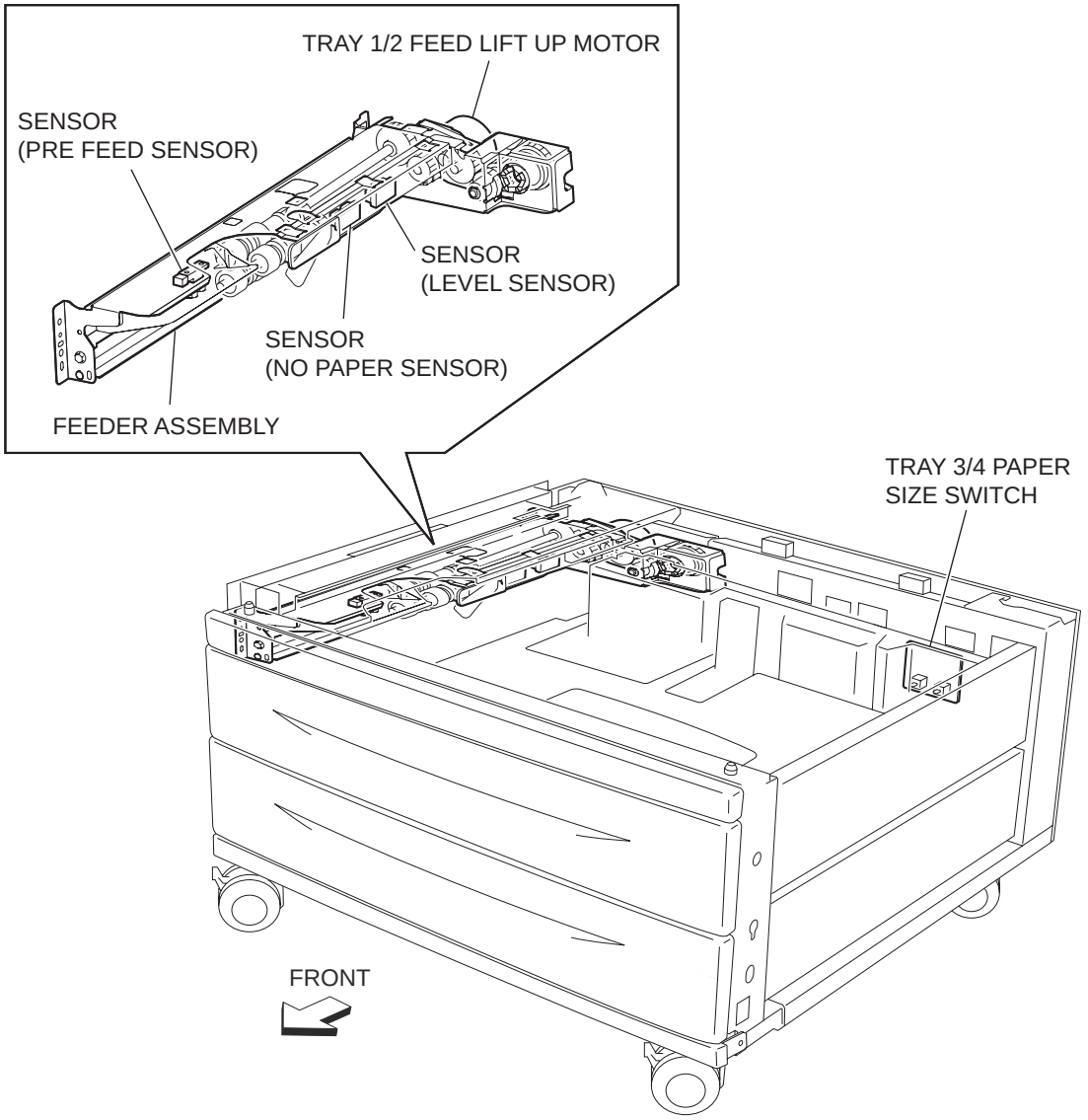
LEVEL SENSOR

This sensor detects, by the ACTUATOR position, whether paper in the Paper Cassette is lifted. When the flag of the ACTUATOR leaves the LEVEL SENSOR sensing area, the sensor detects that the paper has been lifted.

PRE FEED SENSOR

This sensor detects a paper jam in the Paper Cassette by the paper position and sensor ON/OFF time.

The sensor ON/OFF states can be monitored by paper passing through the PRE FEED SENSOR sensing area.



Main Components

LEFT COVER INTERLOCK SWITCH

The LEFT COVER INTERLOCK SWITCH detects open/close of the LEFT COVER ASSEMBLY.

TRAY 3 FEED OUT SENSOR

The TRAY 3 FEED OUT SENSOR detects paper fed from the Tray 3 or Tray 4.

TRAY 4 FEED OUT SENSOR

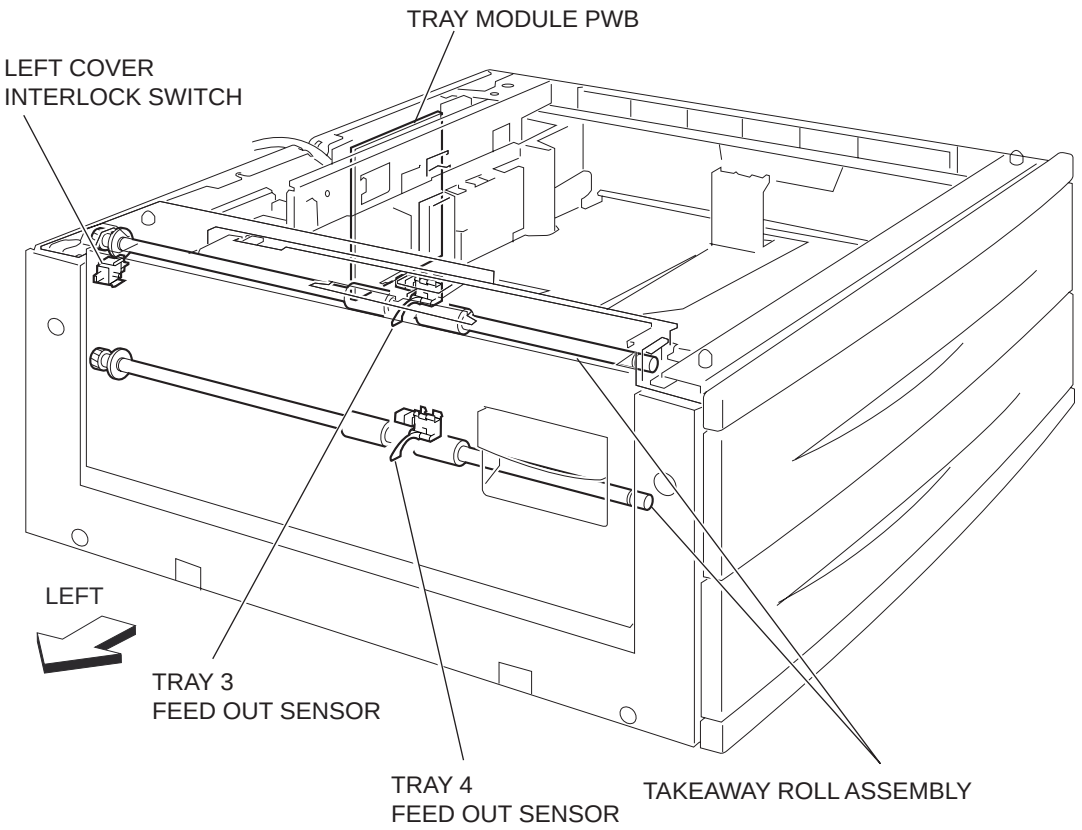
The TRAY 4 FEED OUT SENSOR detects paper fed from the Tray 4.

TAKEAWAY ROLL ASSEMBLY

The TAKEAWAY ROLL ASSEMBLY feeds paper from the Tray 3 or Tray 4 to the printer.

TRAY MODULE PWB

The TRAY MODULE PWB that contains a CPU controls paper feed in the 2 TRAY MODULE upon receiving a command from the PWBA MCU F and sensor/switch information.



Control

Paper Size Control

Paper Cassette Feeding

The following table gives ON/OFF states of the switches on the TRAY 3/4 PAPER SIZE SWITCH, corresponding to the paper sizes on the Paper Cassette.

NOTE

NOTEThe switches on the TRAY 3/4 PAPER SIZE SWITCH are denoted by "S/W2", "S/W4", "S/W3", "S/W5", and "S/W1" respectively from the left side.

Paper Size	ANALOG SWITCH				DIGITAL SWITCH
	S/W1	S/W2	S/W3	S/W4	S/W5
No Cassette	OFF	OFF	OFF	OFF	OFF
5.5" x 8.5"SEF/A5 SEF	OFF	OFF	ON	OFF	OFF
B5 SEF	OFF	OFF	ON	ON	ON
8.5" x 13"SEF	OFF	ON	OFF	ON	OFF
8.5" x 14"SEF	OFF	ON	OFF	ON	ON
A4 SEF	OFF	ON	ON	OFF	OFF
8.5" x 11"SEF	OFF	ON	ON	OFF	ON

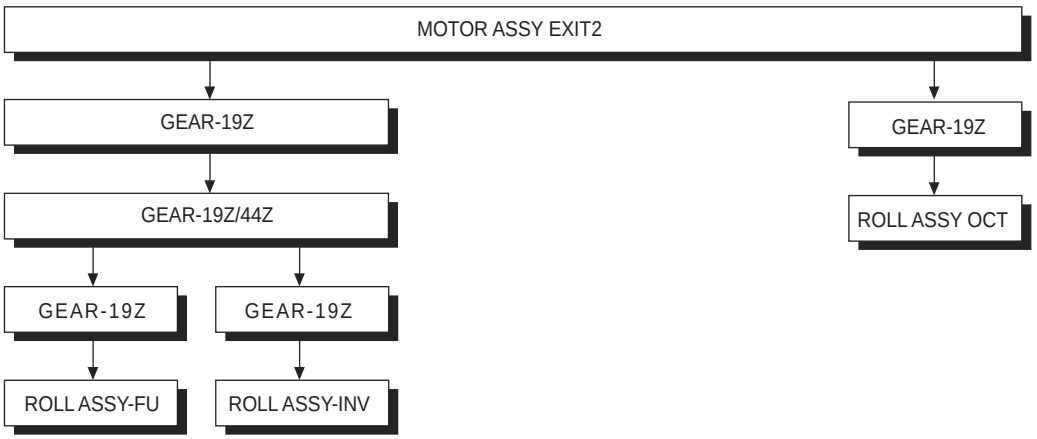
A4 LEF	ON	OFF	ON	OFF	OFF
A3 SEF	ON	OFF	ON	ON	OFF
B5 LEF/Executive LEF	ON	ON	OFF	OFF	ON
8K SEF(TFX/GCO)	ON	ON	OFF	ON	OFF
B4 SEF	ON	ON	OFF	ON	ON
8.5" x 11"LEF	ON	ON	ON	OFF	OFF
16K LEF(TFX/GCO)	ON	ON	ON	OFF	ON
11" x 17"LEF	ON	ON	ON	ON	ON

Exit 2

Driving Force Transmission Path

Motor Assy Exit 2

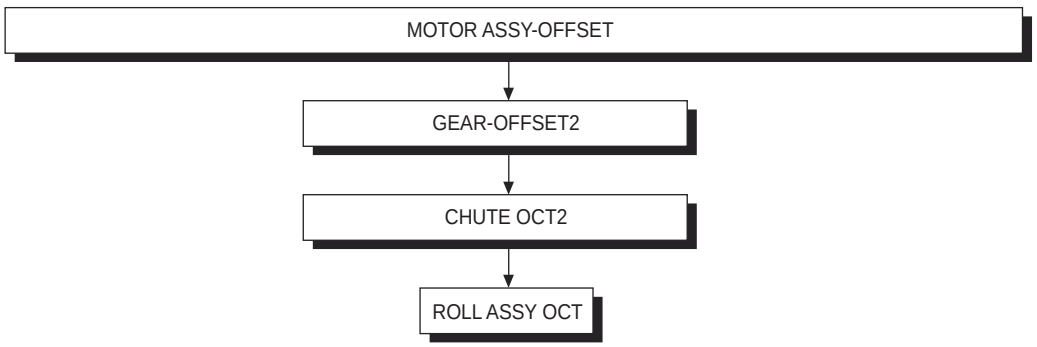
The rotating force of the MOTOR ASSY EXIT2 is transmitted through the gears to components that need mechanical driving force as shown in the following flow.



The transmitted driving force drives the ROLL ASSY-FU, ROLL ASSY-INV and ROLL ASSY OCT through the gears.

Motor Assy-offset

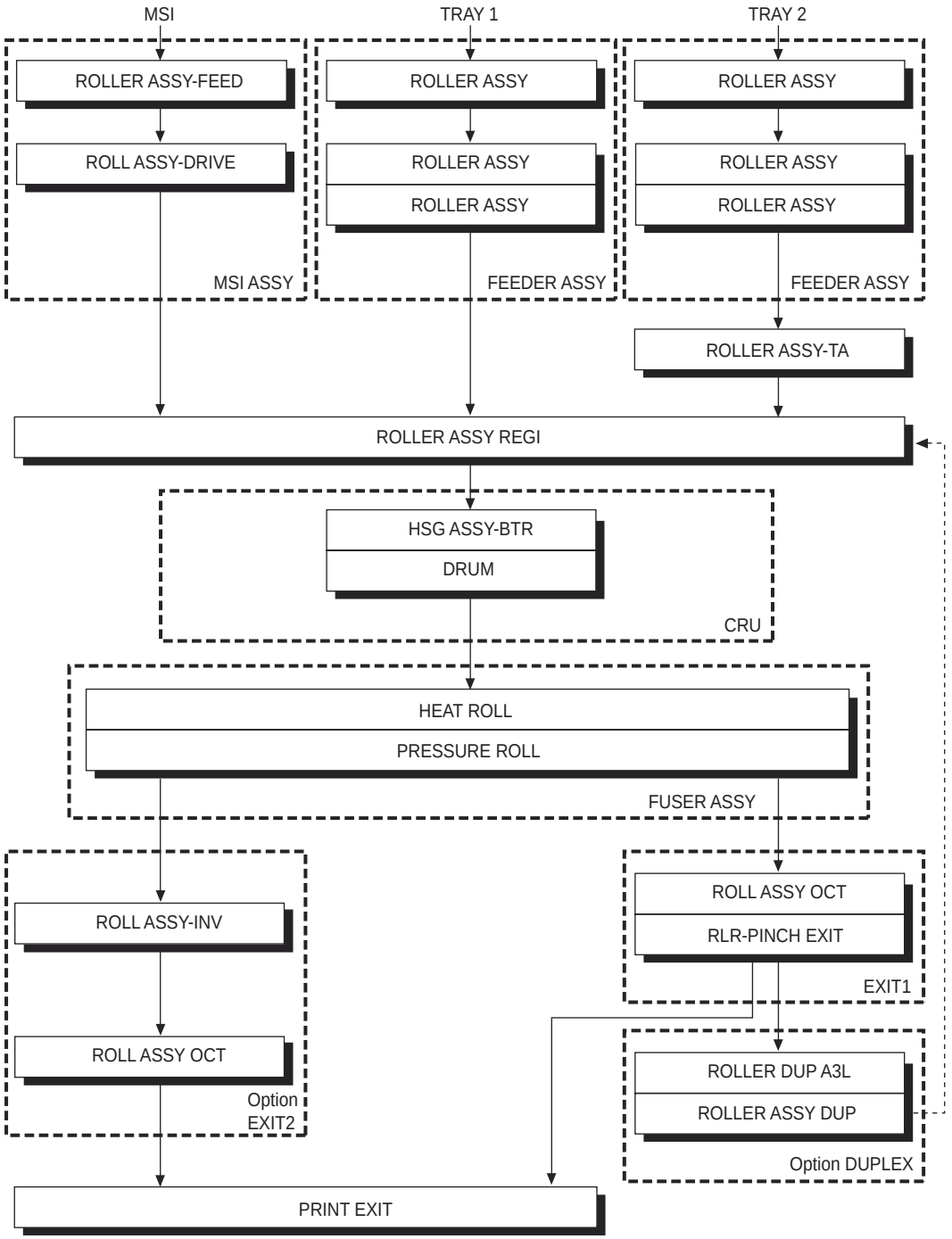
The rotating force of the MOTOR ASSY-OFFSET is transmitted to component that need mechanical actions as shown in the following flow. The ROLL ASSY OCT goes to the OFFSET position by lateral movement not by rotary motion.



Paper Transport

Paper Transport Path

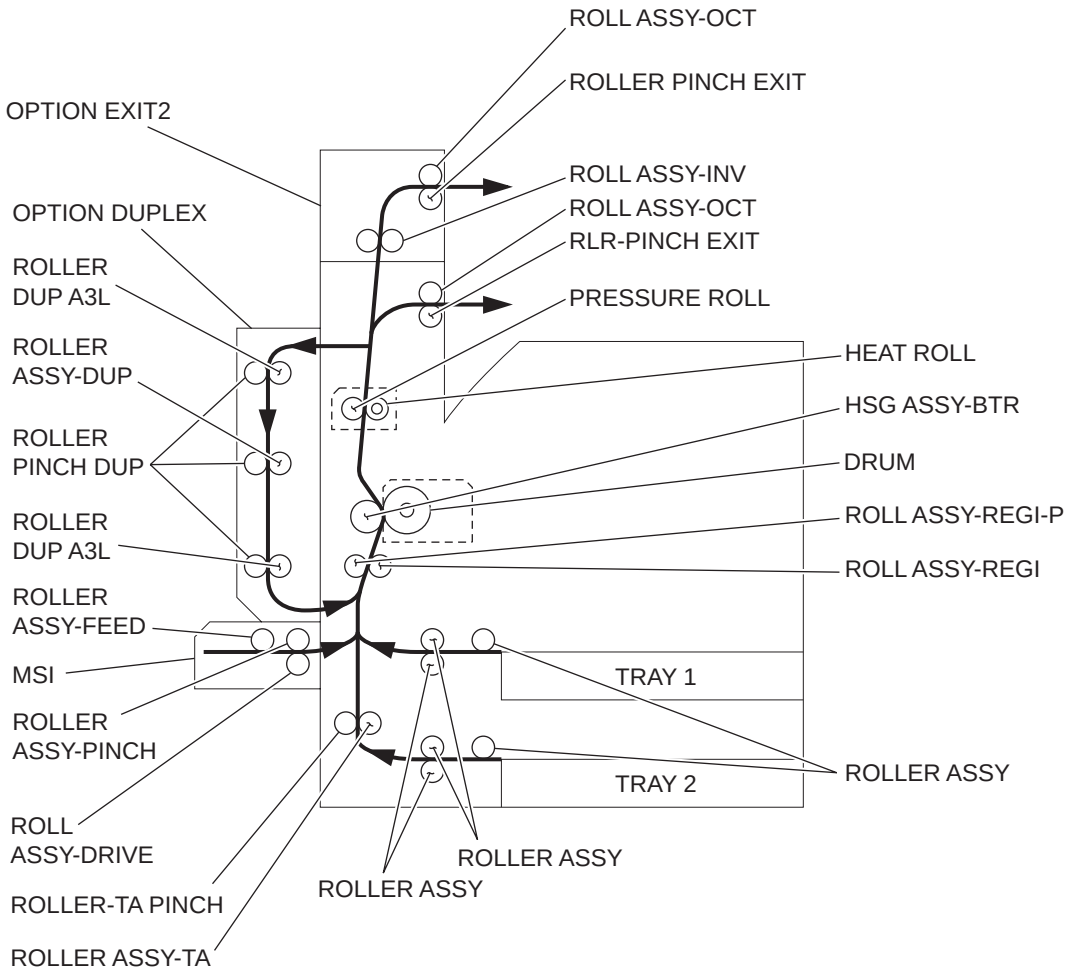
With the optional EXIT2 installed, paper is supplied from the MPF, Tray1 or Tray2, and is transported to the printer along the paper transport path shown below.



Layout of Paper Transport Path

The following figure illustrates the main components directly associated with the paper path and transport with the optional EXIT2 installed.

- Main components associated with transport of paper



Functions of Main Components

When the optional EXIT2 is installed on the top of the printer, offset transfer of paper is available with the FIO laser printer.

This chapter outlines the functions of the main components of the EXIT2.

MOTOR ASSY EXIT 2

The MOTOR ASSY EXIT 2 is a stepping motor to drive the ROLL ASSY-FU, ROLL ASSY-INV and ROLL ASSY OCT. Forward rotation of this motor drives these rollers to feed paper to the Exit2 Face Down Tray. Reverse rotation of this motor drives the ROL ASSY-INV to feed paper to the optional DUPLEX.

MOTOR ASSY-OFFSET

The MOTOR ASSY-OFFSET is a stepping motor to move the ROLL ASSY OCT frontward or rearward. Forward rotation of this motor moves the ROLL ASSY OCT to the front side. Reverse rotation of this motor moves it to the rear side.

SOLENOID ASSY FU

The SOLENOID ASSY FU is a solenoid to activate the GATE-EXIT,2 for switching the paper transport path. By lifting the iron core of the SOLENOID ASSY FU, the GATE-EXIT,2 is raised to eject paper to the Exit2 Face Down Tray.

PWBA EXIT

The PWBA EXIT that contains a CPU controls paper feed in the EXIT2 upon receiving a command from the PWBA MCU F and sensor/switch information.

SWITCH-I/L,CAB

The SWITCH-I/L,CAB detects open/close of the CHUTE LH HIGH.

SENSOR-PHOTO IN

The SENSOR-PHOTO IN detects whether paper is remaining in the EXIT2.

SENSOR

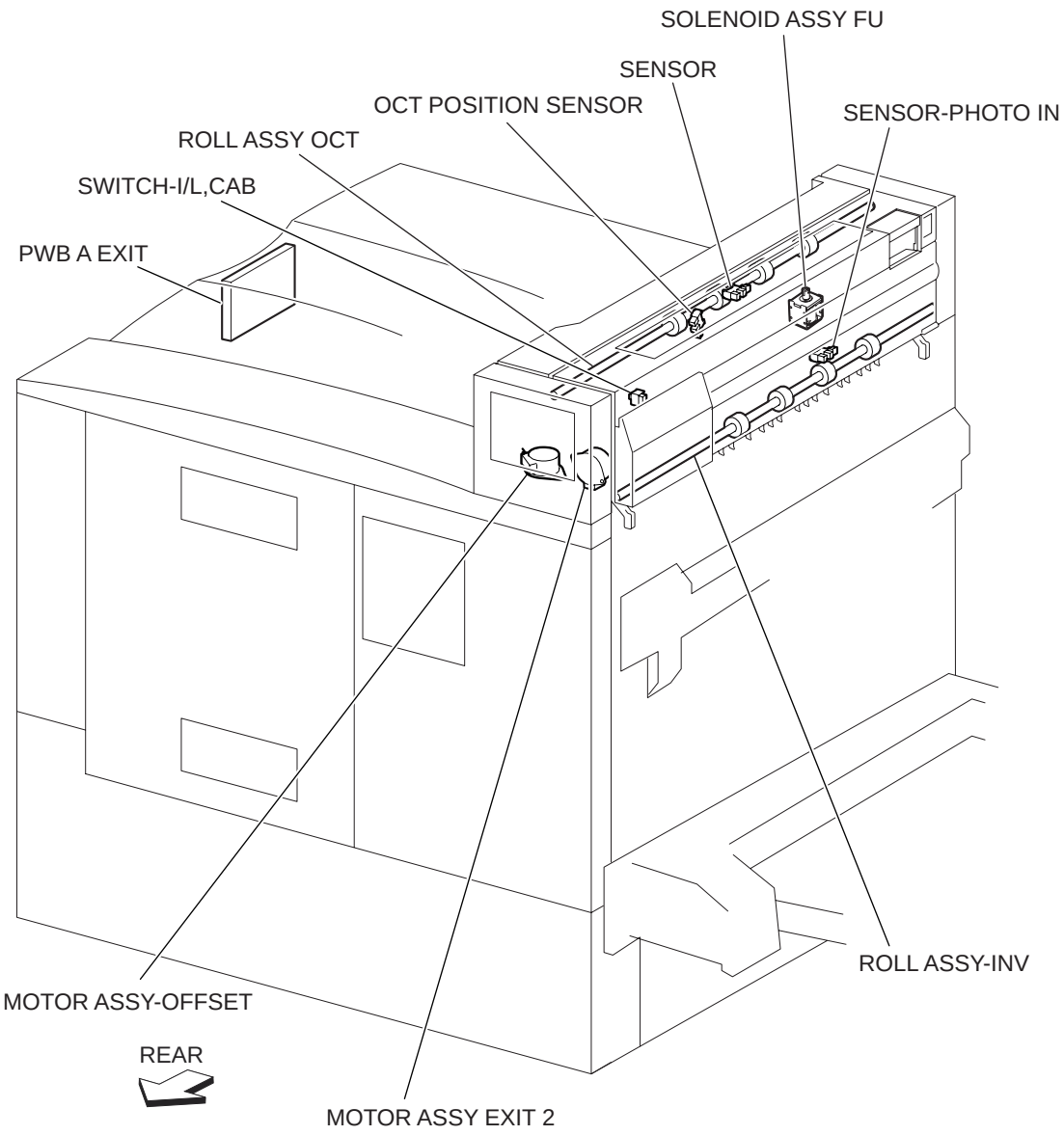
The SENSOR also detects whether paper is remaining in the EXIT2.

OCT POSITION SENSOR

The OCT POSITION SENSOR detects the ROLL ASSY OCT position.

ROLL ASSY-INV / ROLL ASSY OCT

The ROLL ASSY-INV and ROLL ASSY OCT are rollers to eject paper to the Exit2 Face Down Tray or to feed paper to the optional DUPLEX.



HCF

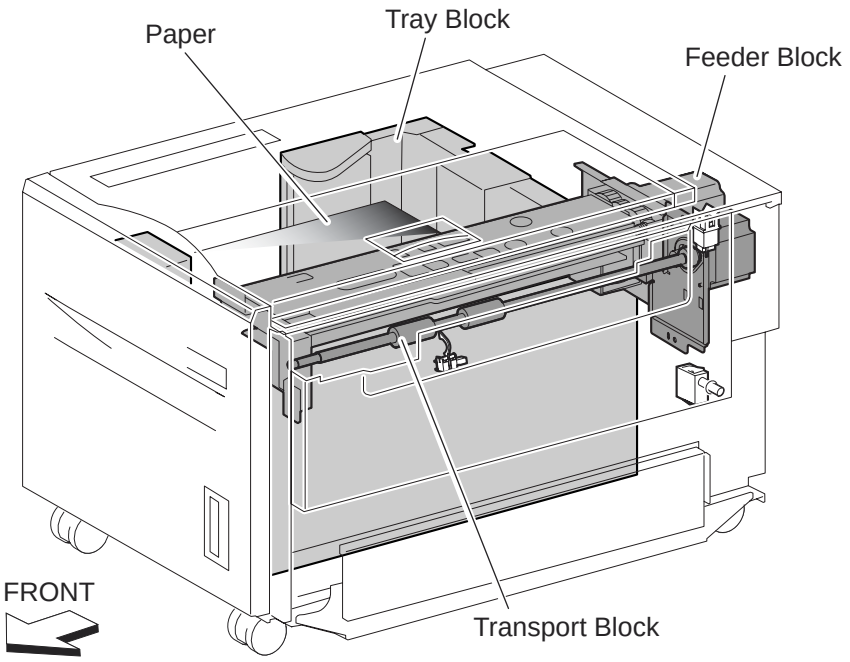
Overview

The HCF, a paper feeder connected to the Printer, has a function to feed up to 2,000 sheets of paper. The following outlines the operation of the HCF.

Configuration

The HCF is composed of the following three blocks.

- Tray Block: Contains paper.
- Feeder Block: Feeds paper from the Tray to the Transport Block.
- Transport Block: Transfers paper from the Feeder Block to the Printer.



Main Functions

In addition to the paper feed feature, the HCF has functions to:

- M/C status monitoring
- Paper size detection
- No-paper detection
- Tray lifting
- Remaining paper volume detection
- Paper jam detection

See the items below for details of each function.

Paper Capacity

Paper volume loaded in the Tray: 2,000 sheets maximum (20 lb 4024DP)
Paper height: 220 mm maximum

Paper Size

The HCF accepts the following paper sizes.

- A4 LEF
- B5 LEF
- Letter (8.5” x 11”) LEF
- 7.25” x 10.5” LEF

Feedable Paper Weight

56 - 216 gsm

Paper Feeding

Outline

The HCF feeds paper from the Tray to the IOT through the Feeder Block and the Transport Block.

Feeder Block

This block comprises Roll Assy Nudger (called “Nudger Roll” hereafter) to feed paper from the Tray, Roll Assy Feed (“Feed Roll” hereafter) and Roll Assy Retard (“Retard Roll” hereinafter) to feed paper from the Nudger Roll to the Transport Block.

These rollers are driven by the Feed Motor (stepping motor) on the Feeder Assy HCF at prescribed timings.

The paper fed by the Feed Roll and Retard Roll passes through the Pre Feed Sensor installed in the following stage.

The Pre Feed Sensor detects the presence of paper fed from the Tray.

The Pre Feed Sensor controls the Feed Motor speed, and ON/OFF operation of the Nudger Solenoid.

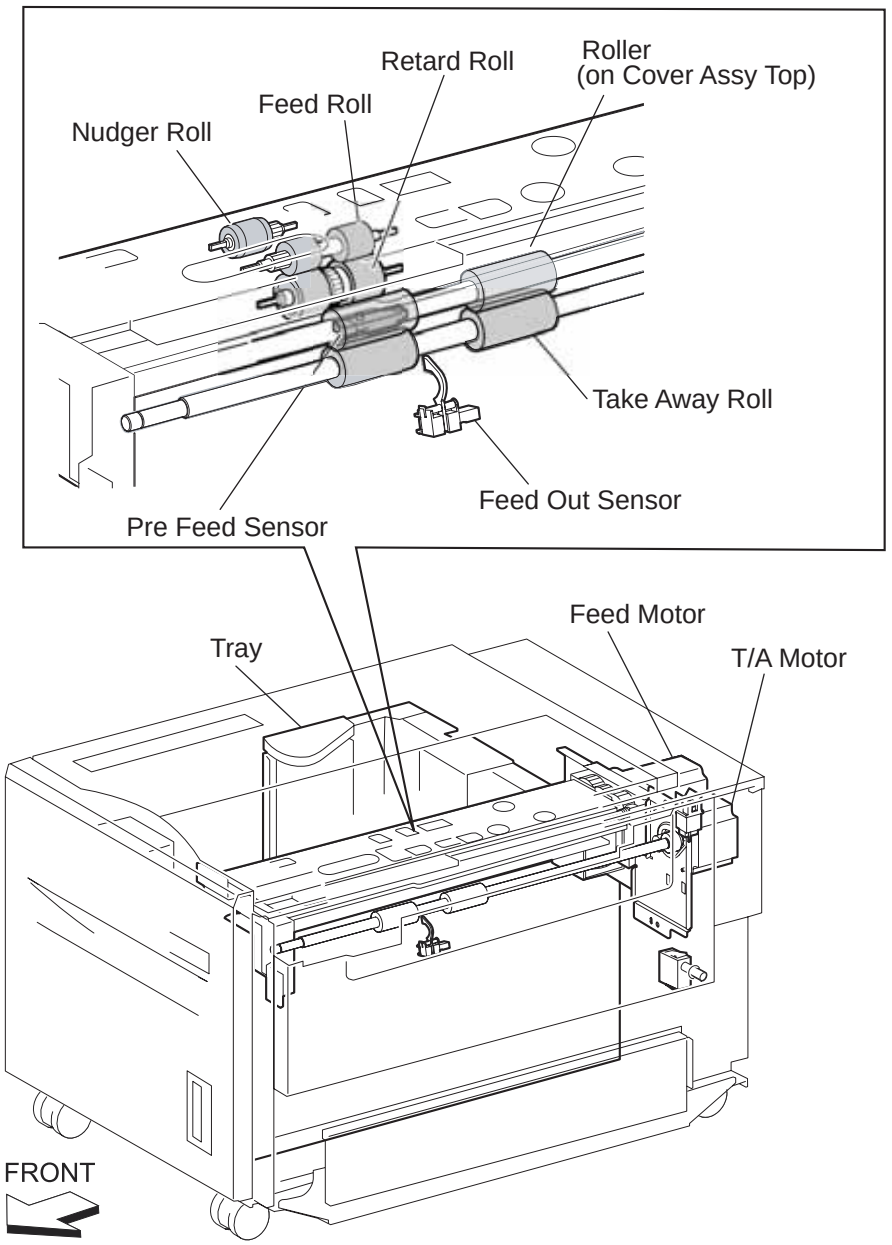
Transport Block

This block transfers paper fed from the Feeder Block to the IOT with the Roller Assy TA (“Take Away Roll” hereinafter) and with the roller installed inside the Cover Assy Top.

The Take Away Roll is driven by the Motor Assy (stepping motor) (“T/A Motor” hereinafter) installed on the rear side.

The paper fed with the Take Away Roll passes through the Feed Out Sensor installed in the following stage.

The Feed Out Sensor detects the presence of paper fed from the Tray, and controls the Feed Motor stop and the T/A Motor speed. It also detects paper jams to identify paper jam zone.



Feeder Block Operation

Upon receiving the feed start signal from the controller, the HCF activates the Nudger Solenoid after a preset time has passed to press the Nudger Roll against the paper in the Tray.

Further, after a preset time has passed after receiving the feed start signal, the HCF rotates forward the Feed Motor to feed paper from the Tray to the Feed Roll side with the Nudger Roll.

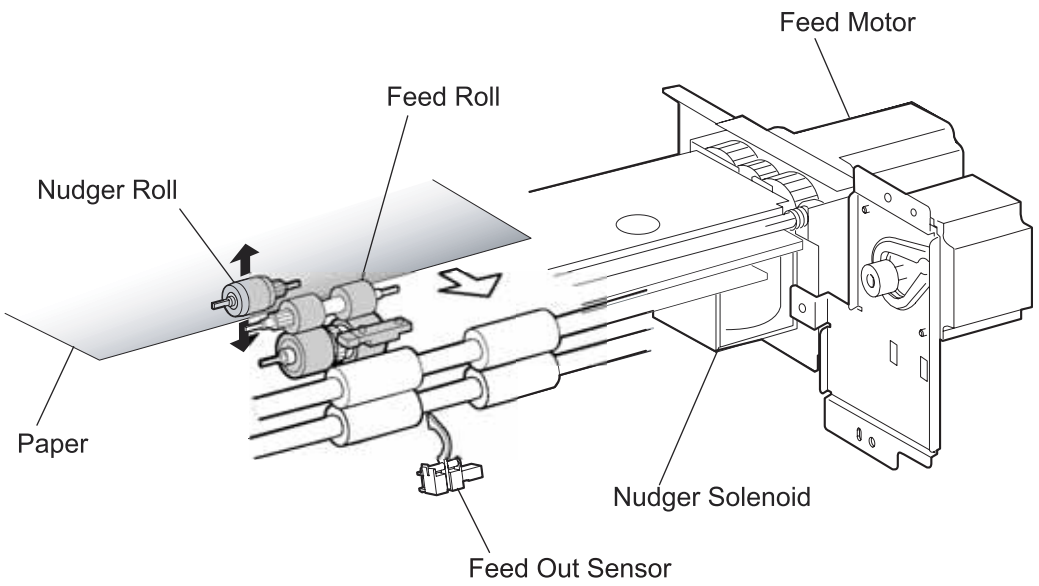
When the end of paper reaches the Pre Feed Sensor (reflective photo-sensor) and the Sensor turns ON, the Nudger Solenoid is deactivated so that the Nudger Roll separates from the paper in the Tray.

The Nudger Solenoid keeps activated at high-voltage for a specified time from its actuation. After that, it still keeps activated at low-voltage until it is deactivated. If the HCF receives the feed start signal for the next paper while the solenoid is activated at low-voltage, it maintains the actuation state at the low-voltage, while pressing the Nudger Roll against the paper in the Tray.

When the paper is transferred to the IOT and the Feed Out Sensor turns ON, the Nudger Solenoid is re-activated for a preset time.

Feed Motor start/stop timing and revs are controlled based on the Feed Motor Start signal and the Pre Feed Sensor ON timing.

Thus, paper is fed from the Tray to the Transport Block.



Transport Block Operation

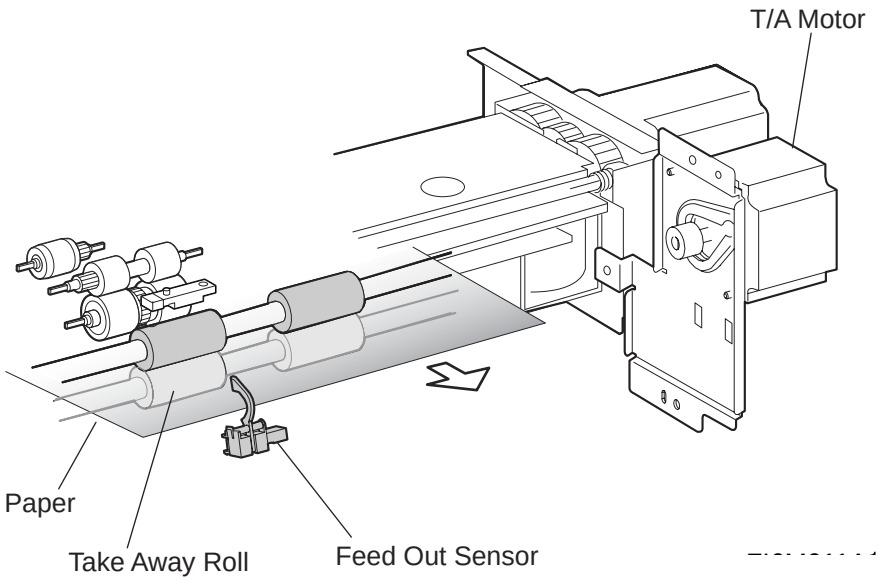
Upon receiving the feed start signal from the controller, the HCF activates the T/A Motor at a high speed after a preset time has passed. This rotating power of the T/A Motor is transmitted to the Take Away Roll, and the paper from the Feeder Block is transferred to the IOT.

When the Feed Out Sensor (photo-sensor) is turned ON (light receiving) by the paper fed with the Take Away Roll, the T/A motor speed decreases after a preset time has passed.

When the Regi Sensor in the IOT is turned ON by the paper fed from the HCF, the T/A Motor starts stopping by the trigger of the sensor ON.

When the next feed start signal is received before the T/A Motor is turned OFF, however, the T/A motor continues to rotate.

Thus, paper is transferred from the Transport Block to the IOT.



Feeder Block Sensor/Motor Functions

Functions of the sensors and motors of the Feeder Block are outlined below.

(1) Feed Motor

The Feed Motor is a stepping motor that rotates forward the Nudger Roll and Feed Roll to feed paper from the Tray to the Transport Block. The motor also lifts the Tray by reverse rotation. (For details, see Sections 5 and 7.)

(2) Nudger Solenoid

The Nudger Solenoid raises or lowers the Nudger Roll. The solenoid keeps activated from the beginning of paper feed until the Pre Feed Sensor turns ON.

The solenoid is activated when the Tray is inserted and when the power is turned ON to check the presence of paper in the Tray. (For details, see Section 6.)

(3) Pre Feed Sensor

The Pre Feed Sensor detects whether paper has been fed from the Tray, and controls the Feed Motor speed. The sensor also becomes a trigger to deactivate the Nudger Solenoid. The sensor turns ON upon detecting paper, and determines that paper is present.

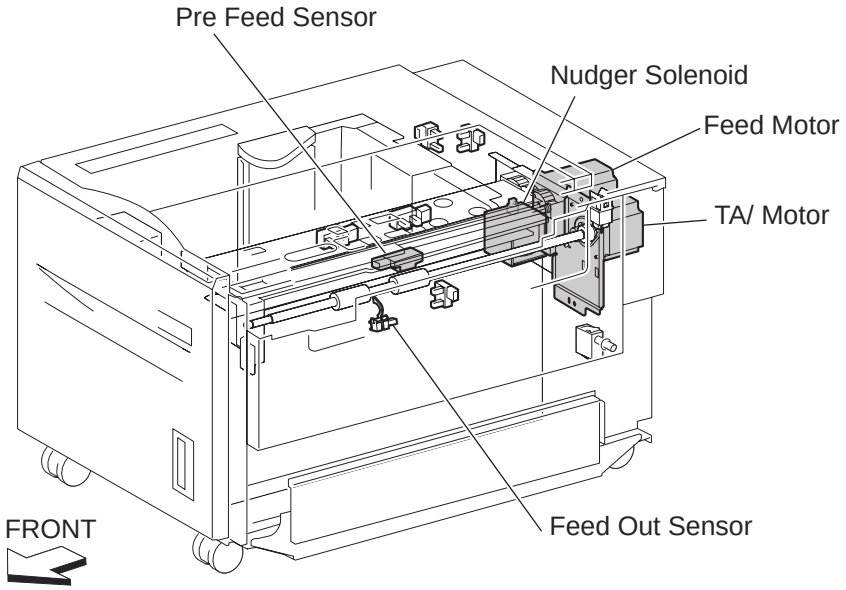
(4) T/A Motor

The T/A Motor is a stepping motor that rotates the Take Away Roll to feed paper to the IOT.

(5) Feed Out Sensor

The Feed Out Sensor detects whether paper has been fed from the Tray, and becomes a trigger to stop the Feed Motor and also to control the T/A Motor speed.

The sensor turns ON (light receiving) upon detecting paper, and determines that paper is present.



M/C Status Monitoring

This function includes detection of static paper jams, interlocking, and insertion of the Tray.

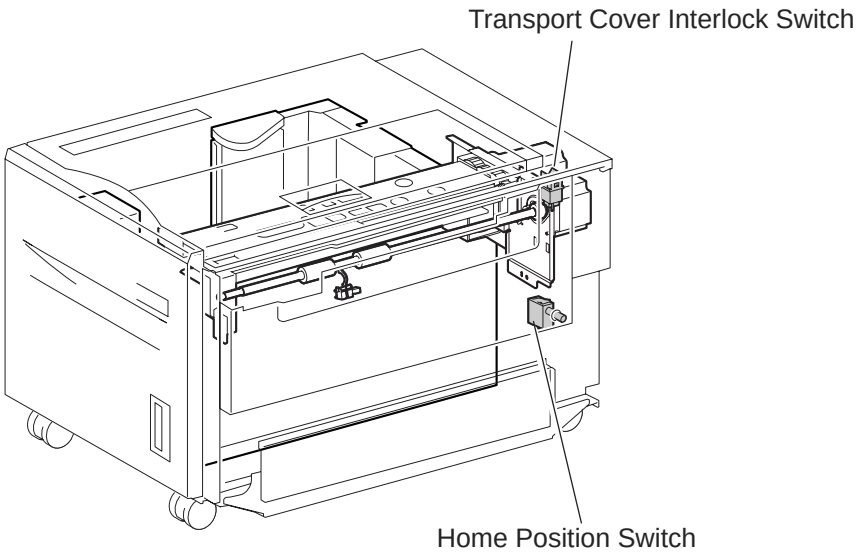
Static Paper Jam Detection

Checks the states of all relevant sensors on the paper path to detect paper jams. When paper is present on the sensor, it is treated as a static jam. This detection of paper jam is carried out during the startup procedure and at every Jam/Fail detection. The states of all relevant sensors are checked during the startup procedure. In addition, the sensor states are always checked at every constant time for the Jam/Fail detection, in order to monitor the variation in sensor levels.

Interlock Detection

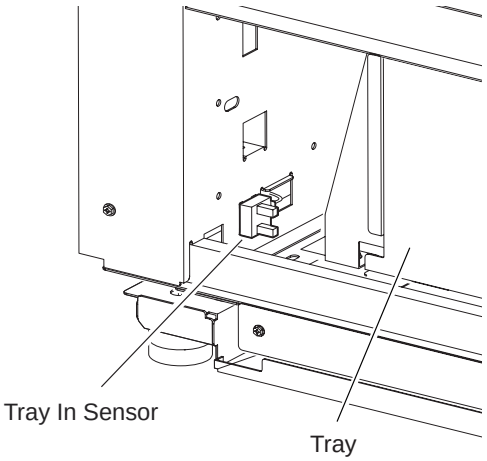
Checks the “Open” state of the Transport Cover Interlock Switch and the Home Position Switch. This checking is constantly carried out while the power is ON.

When “Open” of the Transport Cover Interlock Switch is detected, printing operation is inhibited, and the 24 V supply to the Feed Motor and the T/A Motor is shut off. When “Open” of the Home Position Switch is detected, transfer of paper from the HCF is inhibited.



Tray Insertion Detection

The Tray In Sensor checks whether the Tray is properly set. This checking is constantly carried out while the power is ON. Printing operation is inhibited if the Tray In Sensor OFF (Tray is not present) is detected before starting printing.



Functions of sensors used for M/C status monitoring

The following outlines the functions of the sensors used for monitoring M/C status.

(1) Transport Cover Interlock Switch (Safety interlock)

Detects open/close of the Transport Cover. The ON state of this switch indicates that the Transport Cover is closed.

(2) Home Position Switch

Detects the coupling of the HCF with the IOT. The OFF state of this switch indicates that the HCF is separated from the IOT. In this case, transfer of paper is inhibited.

(3) Tray In Sensor

Detects insertion of the Tray into the HCF. This sensor turns ON when the Tray is properly inserted. While it is OFF, paper feeding from the Tray is inhibited.

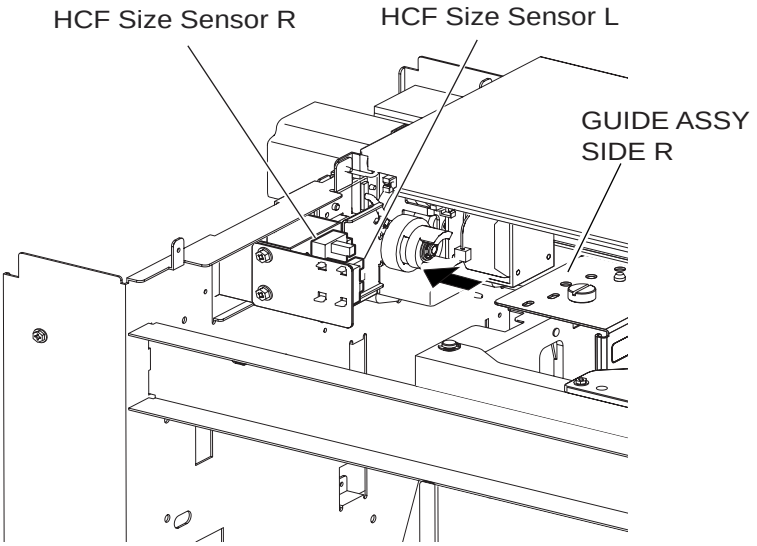
Paper Size Detection

Paper size is automatically detected by loading paper in the Tray and by the GUIDE ASSY SIDE R that is attached to the Tray and aligned with the side of paper. The position of the GUIDE ASSY SIDE R is detected by the HCF Size Sensor R and the HCF Size Sensor L.

NOTE Detectable paper size and sensor level pattern are as follows:

Table 1: Paper Size	Table 2: HCF Size Sensor R	Table 3: HCF Size Sensor L
B5L	OFF	OFF
7.25” x 10.5” L		
8.5” x 11” L	ON	OFF
A4L	OFF	ON

(Note: B5L and 7.25” x 10.5” L can be switched by the NVM.)



Detection of paper size is carried out during the startup procedure, and when a specified time has passed from the Tray In Sensor level change “OFF to ON” with the Tray inserted. Paper size is also detected at every constant time. When the same size has been detected a specified times consecutively, the size of paper loaded in the Tray is determined.

If a sensor level pattern does not match any of those in the above table, paper size cannot be determined. In this case, though the Tray is lifted, print start by feeding paper from the Tray is inhibited.

Function of the sensor used for paper size detection

The following outlines the function of the sensor used for detecting paper size.

(1) Size Sensors

There are two Size Sensors: HCF Size Sensor R and HCF Size Sensor L.

By moving the GUIDE ASSY SIDE R to turn ON/OFF these sensors, and by using the resulting sensor level patterns, paper size can be determined.

Tray Lifting

Tray lift operation starts automatically when the Tray is inserted with paper loaded.

The paper is lifted and stops at the feeding position. At the same time, detection of no paper and remaining paper volume becomes available.

The Tray lifting operation when the power is turned ON or when the Tray is inserted is carried out in the following procedure.

- Activate the Nudger Solenoid.
- Check the Level Sensor status a specified time has passed after the Nudger Solenoid is activated.
- When the sensor is OFF, rotate reversely the Feed Motor to lift the Tray.

When the sensor is turned ON by the lift operation, stop the Feed Motor after a specified time has passed to stop lifting the Tray.

If the sensor is ON at power ON, the Tray is regarded to be already at the feeding position. Therefore, the Tray is no longer lifted.

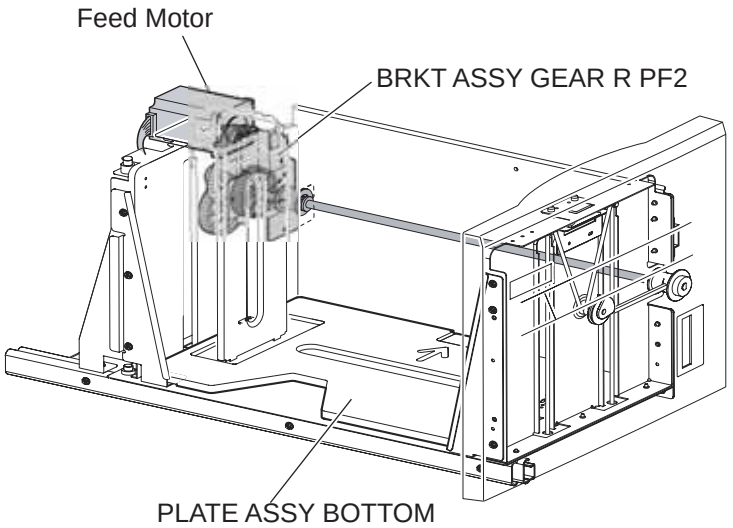
While paper is being transferred to the IOT, the Tray lifting is carried out in the following procedure.

- If Level Sensor OFF is detected when the Nudger Solenoid is deactivated during paper feeding, quick lifting of the Tray is carried out.

  In this case, rotate reversely the Feed Motor a specified time has passed after completion of the paper transfer to the IOT, and then stop the motor after a specified time has passed. The quick lifting is carried out while the motor is rotating reversely. The Nudger Solenoid is deactivated during the quick lifting. At this time, the Nudger Roll is off the paper, and therefore no paper is fed.

The tray lift operation is not carried out when a paper jam occurs in the HCF or when the Transport Cover Interlock Switch or the Home Position Switch detects Interlock Open.

Lowering the Tray is carried out when the Tray is removed. No motor is used during the lowering operation. The Tray descends only by the paper weight and the PLATE ASSY BOTTOM.



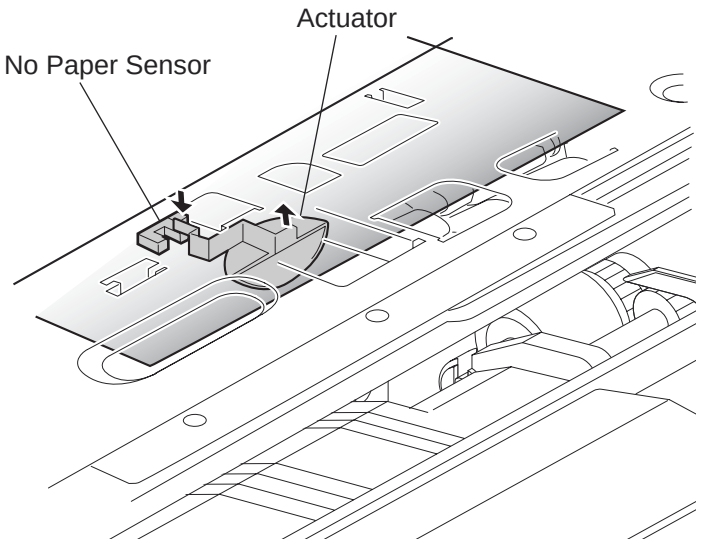
No-Paper Detection

This function checks whether paper is loaded or not in the Tray.

When paper is present, the actuator in the middle of the HCF is raised by the lifting of paper and leaves the sensing area of the No Paper Sensor (photo-sensor), which makes the sensor light-receivable. Thus, presence of paper is detected.

On the other hand, if paper end occurs when the Tray is at the feeding position, the actuator comes inside the sensing area of the No Paper Sensor, which blocks the light transmission of the sensor. Thus, “No-Paper” is detected.

If the Tray is not lifted, the actuator remains in the sensing area of the sensor, while blocking the light transmission of the sensor. In this case, “No-Paper” is determined regardless of the presence of paper in the Tray.



Detection of “No-Paper” is carried out at every constant period after the lifting operation is completed.

When “No-Paper” is detected, paper transfer from the HCF is inhibited.

If “No-Paper” is detected during printing, print operation of the next paper is stopped. However, when the printer is operating in the ATS Mode and there is paper of the same size in another Tray, paper is automatically fed out of the Tray.

Function of sensor used for No-Paper detection

The following outlines the function of the sensor used for detecting No-Paper.

(1) No Paper Sensor

Detects whether paper is present or not in the Tray.

When this sensor is OFF (light receiving) while the Tray is at the feeding position, the presence of paper is detected.

Remaining Paper Volume Detection

This function determines the paper volume remaining in the Tray by using the Feed Motor rotation time and the Level Sensor ON timing during the Tray lifting time. Thus, the printer notifies operators of remaining paper volume as 25%, 50%, 75%, FULL, or 0 (zero).

If the remaining paper volume becomes zero before “No-Paper” is detected, the indication remains at (25%).

When the No Paper Sensor detects “No-Paper”, the indication becomes (0) (zero).

When a fault occurs, determination of remaining paper volume is carried out as shown below.

- When the Interlock becomes open during lifting operation

Remaining paper volume is determined based on the total of the time until Interlock open + the time from the Feed Motor forward/reverse rotation until the Level Sensor ON.

- When the power is turned OFF and ON during lifting operation

Remaining paper volume is determined by the lifting time after power ON. (In this case, be careful that the actual volume of the remaining paper in the Tray may differ from the indication.)

- When the power is turned OFF and ON while the Tray is at the feeding position

If the Level Sensor is ON when the power is turned ON, the remaining paper volume before the previous power OFF is regarded as the remaining paper volume at that time.

If the sensor is OFF when the power is turned ON, the HCF regards that the Tray has been removed, and determines the remaining paper volume based on the time from the Feed Motor forward/reverse rotation until the Level Sensor ON.

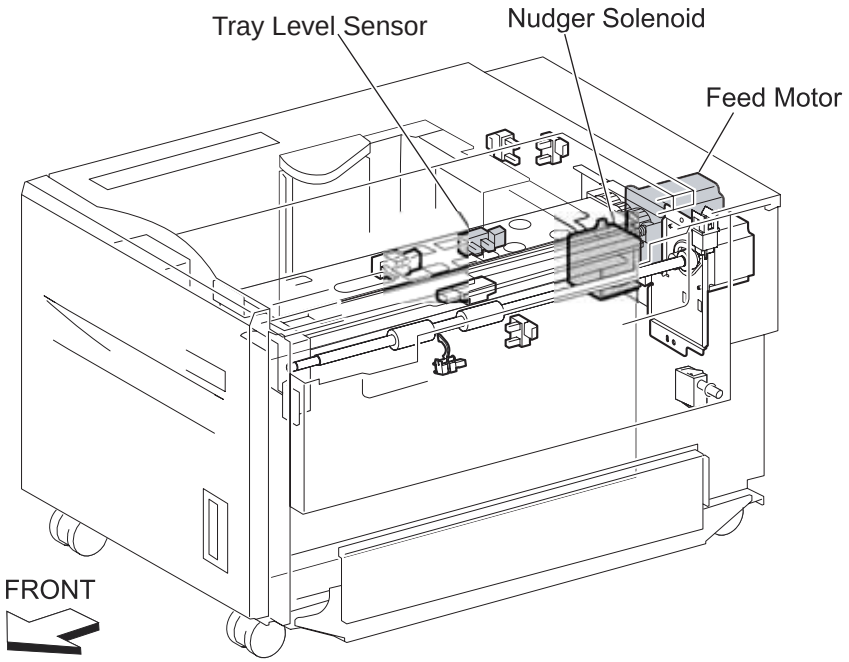
Function of sensor used for remaining paper volume detection

The following outlines the function of the sensor used for detecting the volume of remaining paper

(1) Tray Level Sensor

Detects the paper feeding position (paper height) in the Tray to control the paper position.

While this sensor is OFF, lifting the Tray is continued until the sensor turns ON.

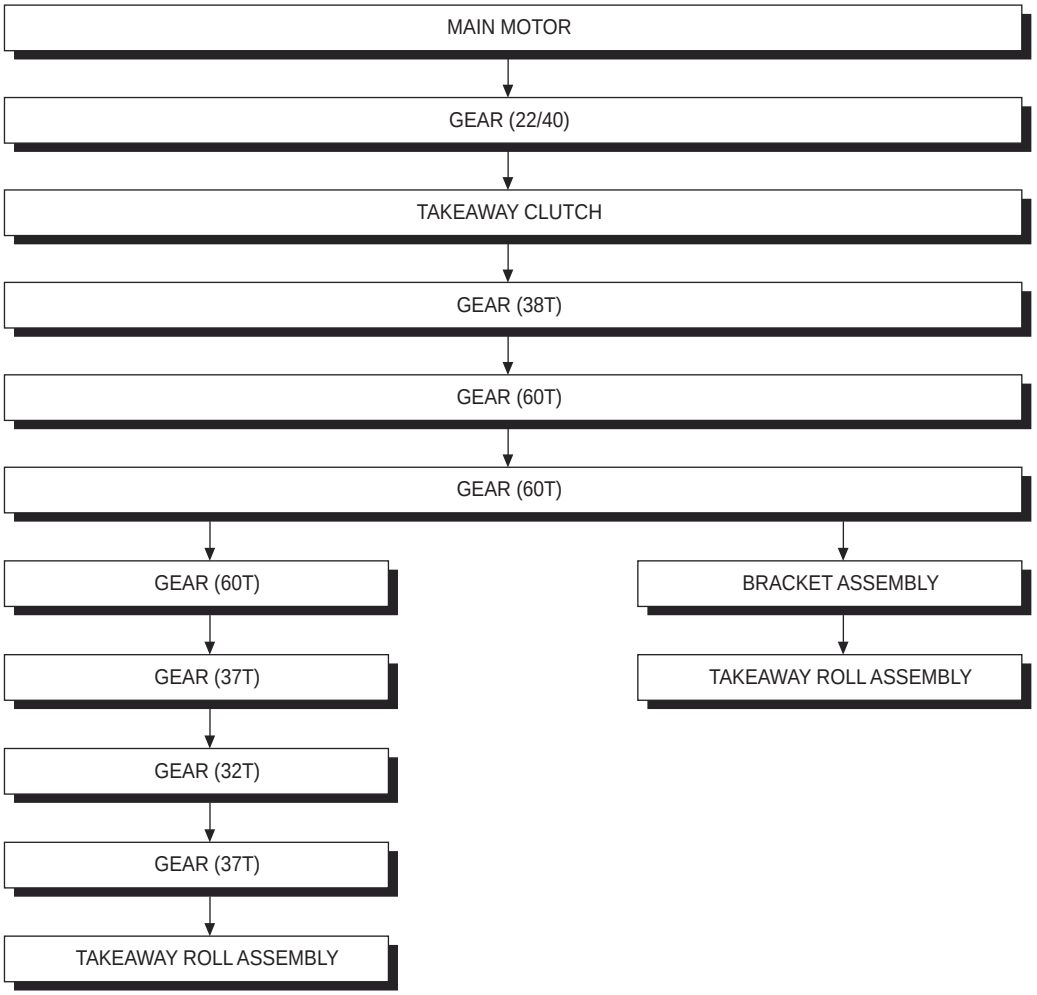


Tandem Tray

Driving Force Transmission Path

Main Motor

The rotating force of the MAIN MOTOR is transmitted through the gears to components that need mechanical driving force as shown in the following flow.

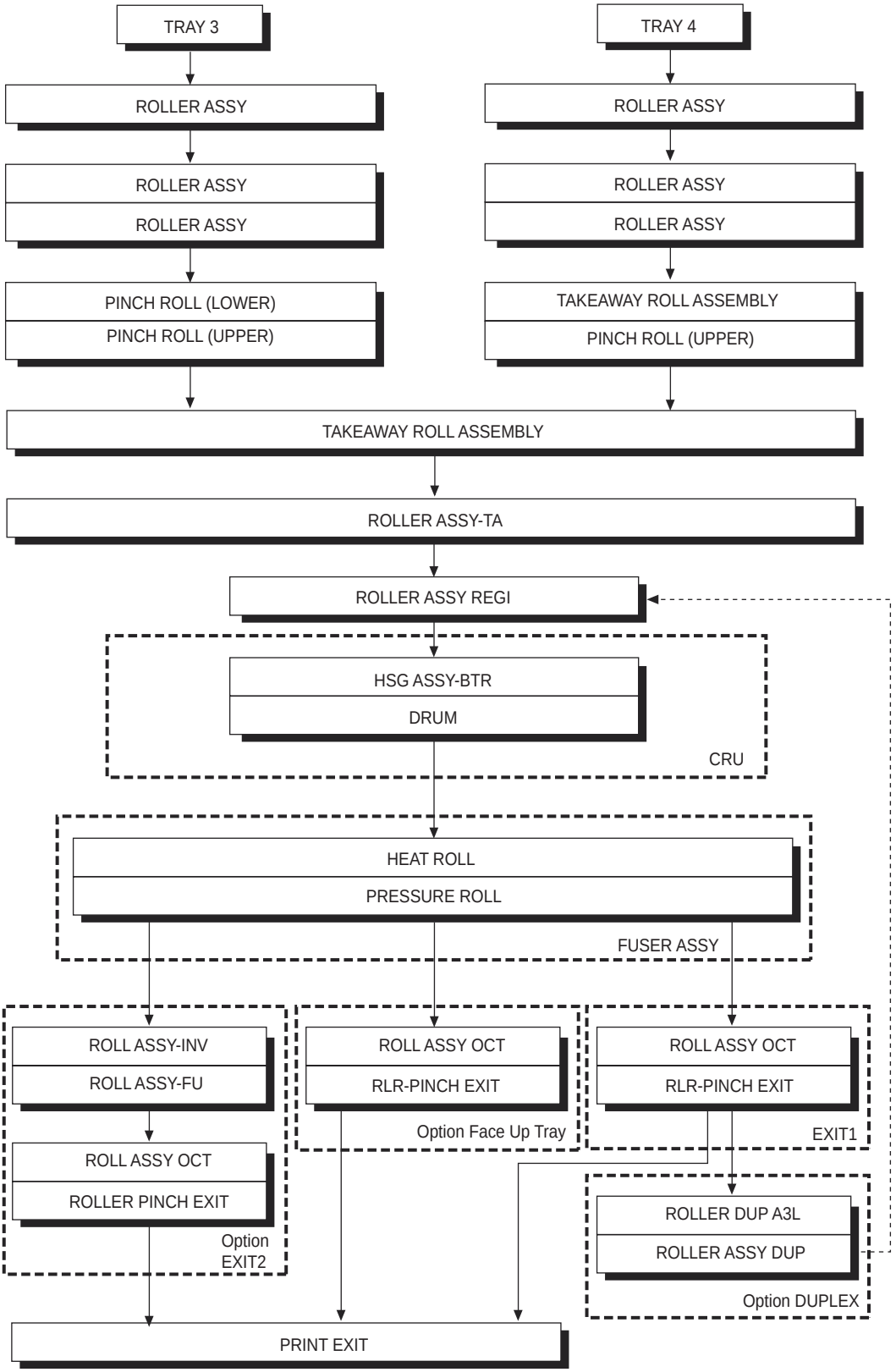


The driving force transmitted to the GEAR drives the TAKEAWAY ROLL ASSEMBLY through the clutch and gears.

Paper Transport

Paper Transport Path

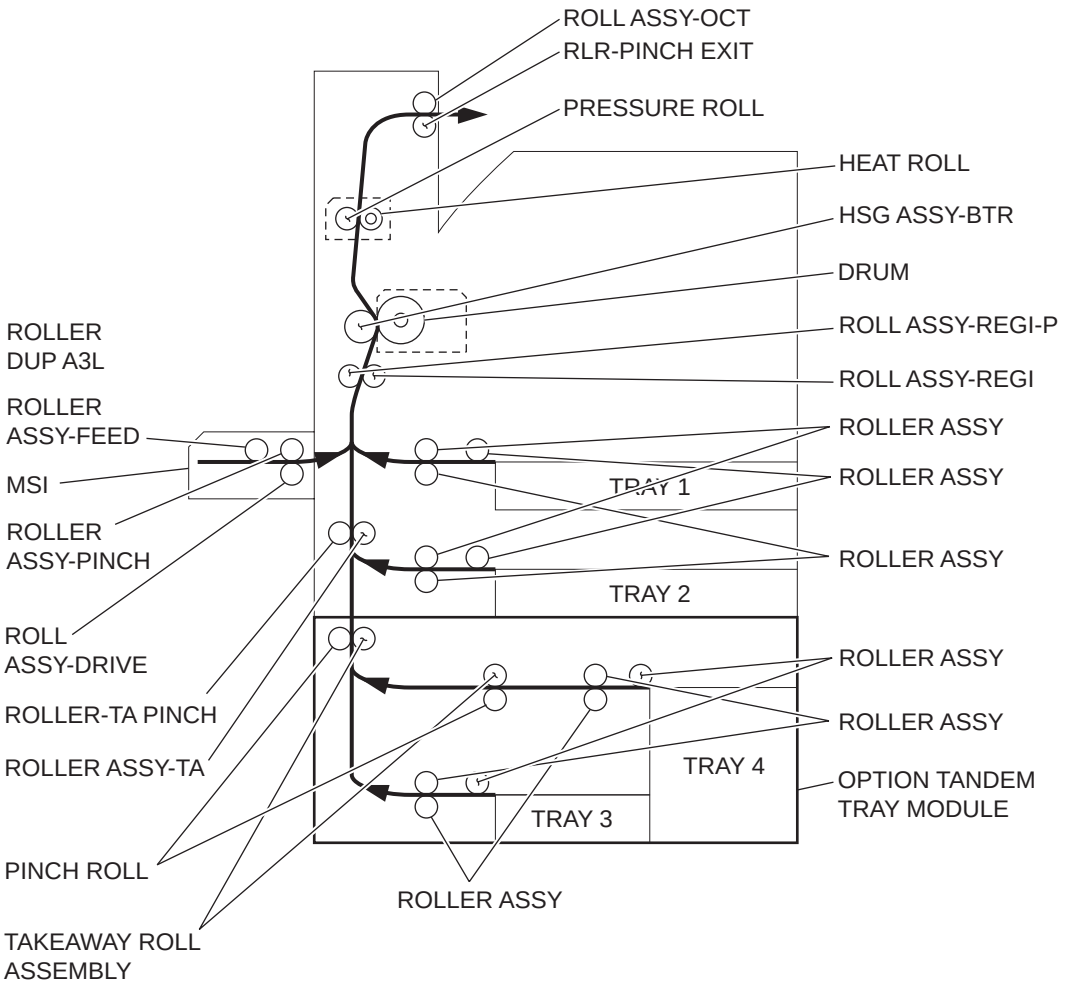
Paper is supplied from the Tray3 or Tray4, and is transported to the printer along the paper transport path shown below.



Layout of Paper Transport Path

The following is a cross section of the FIO laser printer and the optional TANDEM TRAY MODULE, showing main components directly associated with the paper path and transport.

- Main components associated with the paper transport



Functions of Main Components

When the optional TANDEM TRAY MODULE is installed under the printer, additional trays are available.

The following chapters outline the functions of the main components of the TANDEM TRAY MODULE.

24.1 Paper Cassette

24.2 Paper Feeder

24.3 Main Components

Paper Cassette

It is necessary to adjust the FRONT SIDE GUIDE and REAR SIDE GUIDE on the Paper Cassette to match the paper size.

FRONT SIDE GUIDE / REAR SIDE GUIDE

The FRONT SIDE GUIDE can be adjusted to different paper sizes by moving it to the front or rear. These guides come into contact with the front and rear edges of the paper and hold it in position.

The REAR SIDE GUIDE moves together with the FRONT SIDE GUIDE.

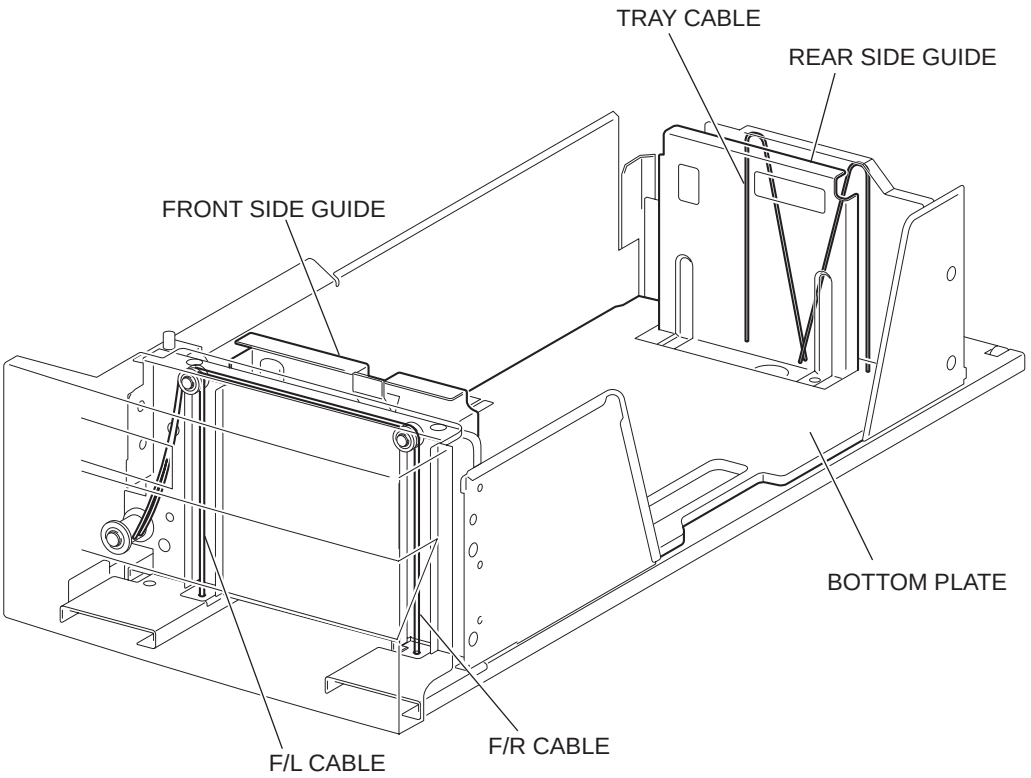
BOTTOM PLATE

Regarding the Tray3, the force pushing up the BOTTOM PLATE is transmitted by the driving force of the MOTOR on the FEEDER ASSEMBLY to the LIFT SHAFT ASSEMBLY through

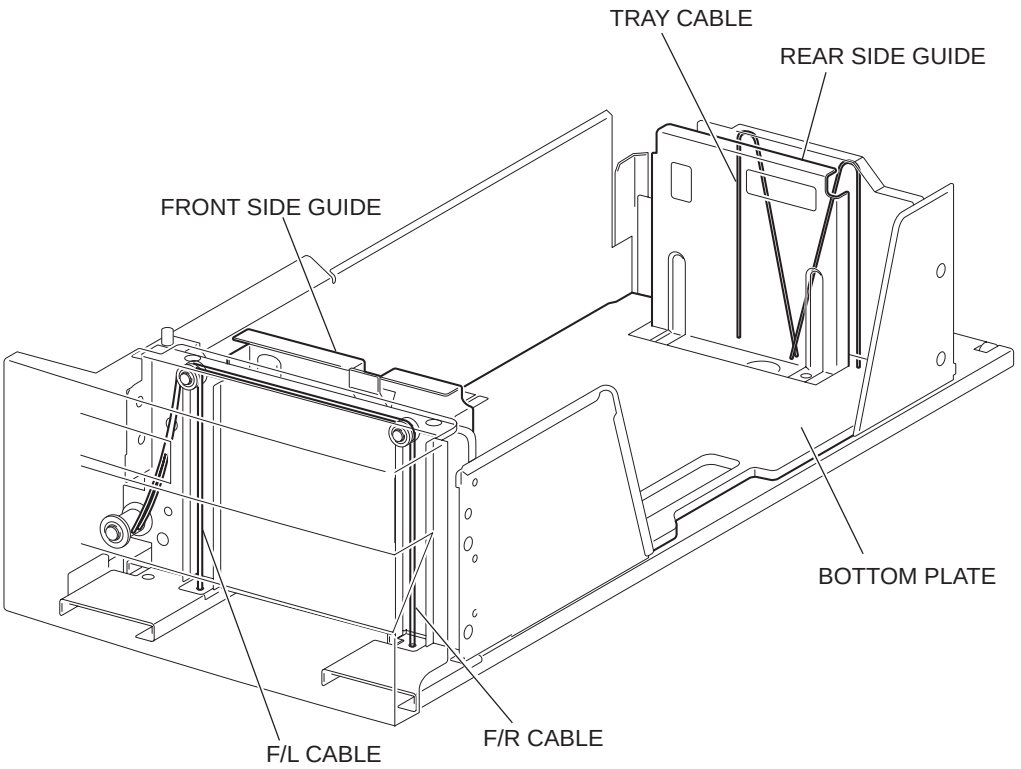
the GEAR ASSEMBLY (Tray 3). The BOTTOM PLATE is pushed up via the TRAY CABLE, F/R CABLE and F/L CABLE by the rotation of the LIFT SHAFT ASSEMBLY, which causes the supplied paper to get in contact with the ROLLER ASSY (NUDGER).

Regarding the Tray4, the force pushing up the BOTTOM PLATE is transmitted to the LIFT SHAFT ASSEMBLY through the GEAR ASSEMBLY (Tray 4). The BOTTOM PLATE is pushed up via the FRONT TRAY CABLE and REAR TRAY CABLE by the rotation of the LIFT SHAFT ASSEMBLY, which causes the supplied paper to get in contact with the ROLLER ASSY (NUDGER).

- Tray3 Paper Cassette



- Tray4 Paper Cassette



Detection of paper size

The paper size to which the cassette is set is transmitted to the switches S/W1 and S/W3 on the TRAY 3/4 PAPER SIZE SWITCH by moving these guides. The paper size is detected by the ON/OFF information of these switches.

Paper sizes that can be automatically detected are as 4.1 Paper Size Control:

Paper Feeder

Since the Tray3 and Tray4 are functionally equivalent in terms of the TRAY 3/4 PAPER SIZE SWITCH, NO PAPER SENSOR, LEVEL SENSOR and PRE FEED SENSOR, only the components of one tray are described here.

The Paper Feeder is a mechanical unit for supplying paper from the Paper Cassette to the printer. The driving force from the TRAY 1/2 FEED LIFT UP MOTOR on the FEEDER ASSY is transmitted to the three ROLLER ASSYs to feed paper.

When the ROLLER ASSY (NUDGER) picks up some sheets of paper and the remaining paper decreases, the ACTUATOR (SUPPORT ASSEMBLY) of the NO PAPER SENSOR lowers accordingly.

TRAY 1/2 FEED LIFT UP MOTOR

This motor is activated to feed paper and to lift the BOTTOM PLATE. When feeding paper, it rotates forward to drive the ROLLER ASSY (NUDGER).

TRAY 3/4 PAPER SIZE SWITCH

This TRAY 3/4 PAPER SIZE SWITCH switches for setting the size of paper supplied from each Paper Cassette. A signal indicating the set size is transmitted as a voltage to the PWBA MCU F.

NO PAPER SENSOR

If paper runs out in the Paper Cassette, the ACTUATOR (SUPPORT ASSEMBLY) lowers and the flag of the ACTUATOR (SUPPORT ASSEMBLY) that has stayed in the NO PAPER SENSOR sensing area leaves there. Thus, the light of the sensor is transmitted. When the sensing area is blocked (paper is present), the signal becomes OFF.

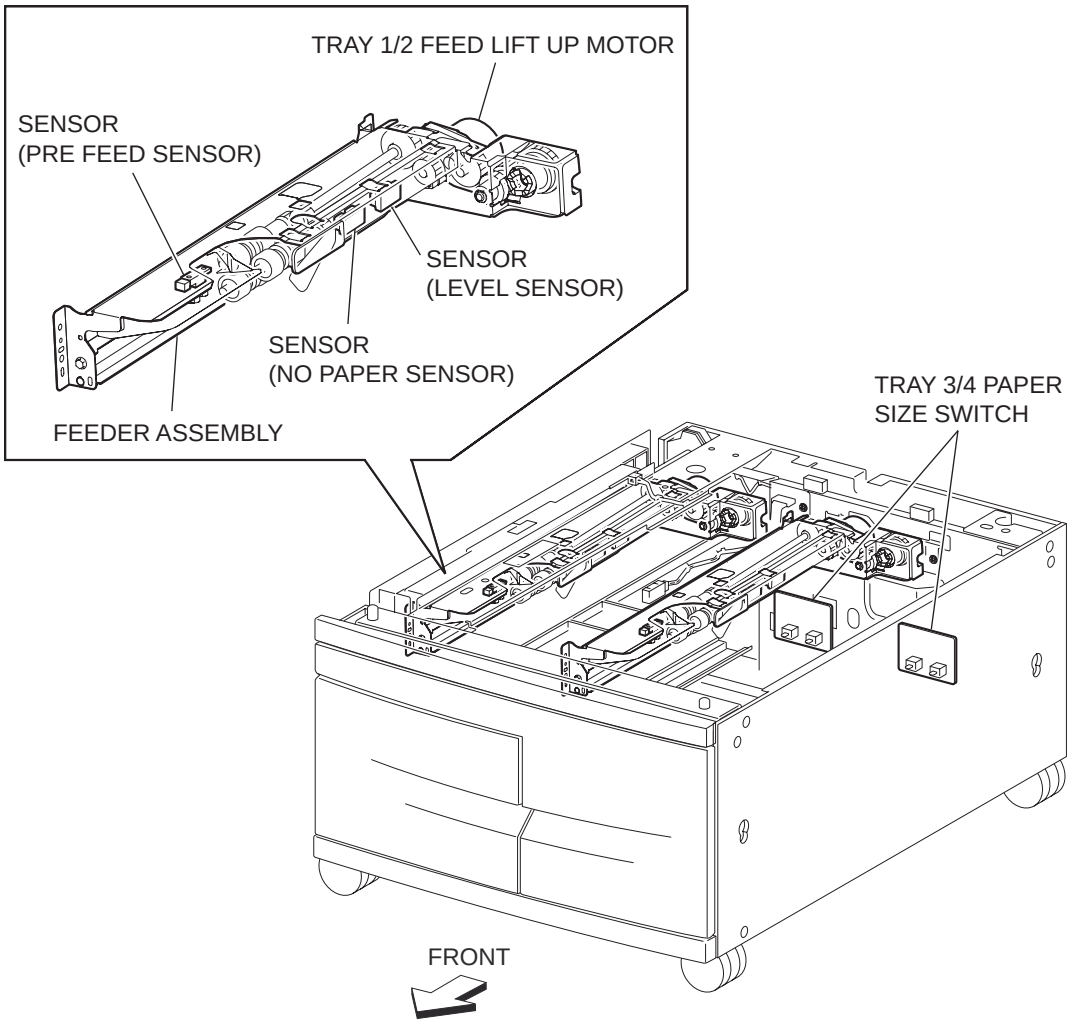
LEVEL SENSOR

This sensor detects, by the ACTUATOR position, whether paper in the Paper Cassette is lifted. When the flag of the ACTUATOR leaves the LEVEL SENSOR sensing area, the sensor detects that the paper has been lifted.

PRE FEED SENSOR

This sensor detects a paper jam in the Paper Cassette by the paper position and sensor ON/OFF time.

The sensor ON/OFF states can be monitored by paper passing through the PRE FEED SENSOR sensing area.



Main Components

LEFT COVER INTERLOCK SWITCH

The LEFT COVER INTERLOCK SWITCH detects open/close of the LEFT COVER ASSEMBLY.

TRAY 3 FEED OUT SENSOR

The TRAY 3 FEED OUT SENSOR detects paper fed from the Tray 3 or Tray 4.

TRAY 4 FEED OUT SENSOR

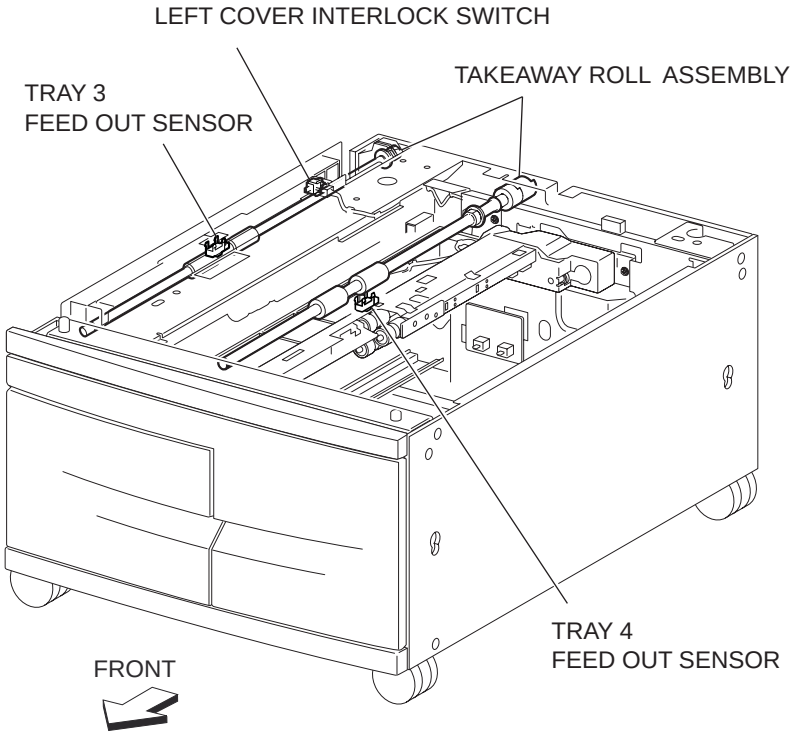
The TRAY 4 FEED OUT SENSOR detects paper fed from the Tray 4.

TAKEAWAY ROLL ASSEMBLY

The TAKEAWAY ROLL ASSEMBLY feeds paper from the Tray 3 or Tray 4 to the printer.

TRAY MODULE PWB

The TRAY MODULE PWB that contains a CPU controls paper feed in the TANDEM TRAY MODULE upon receiving a command from the PWBA MCU F and sensor/switch information.



Paper Size Control

Paper Cassette Feeding

The following table gives ON/OFF states of the switches on the TRAY 3/4 PAPER SIZE SWITCH, corresponding to the paper sizes of the Paper Cassette.

NOTE The switches on the TRAY 3/4 PAPER SIZE SWITCH are denoted by "S/W1" and "S/W3" respectively from the left side.

Paper Size	ANALOG SWITCH	
	S/W1	S/W3
No Cassette	OFF	OFF
B5L/7.25" x 10.5"L	OFF	ON
8.5" x 11"L	ON	OFF

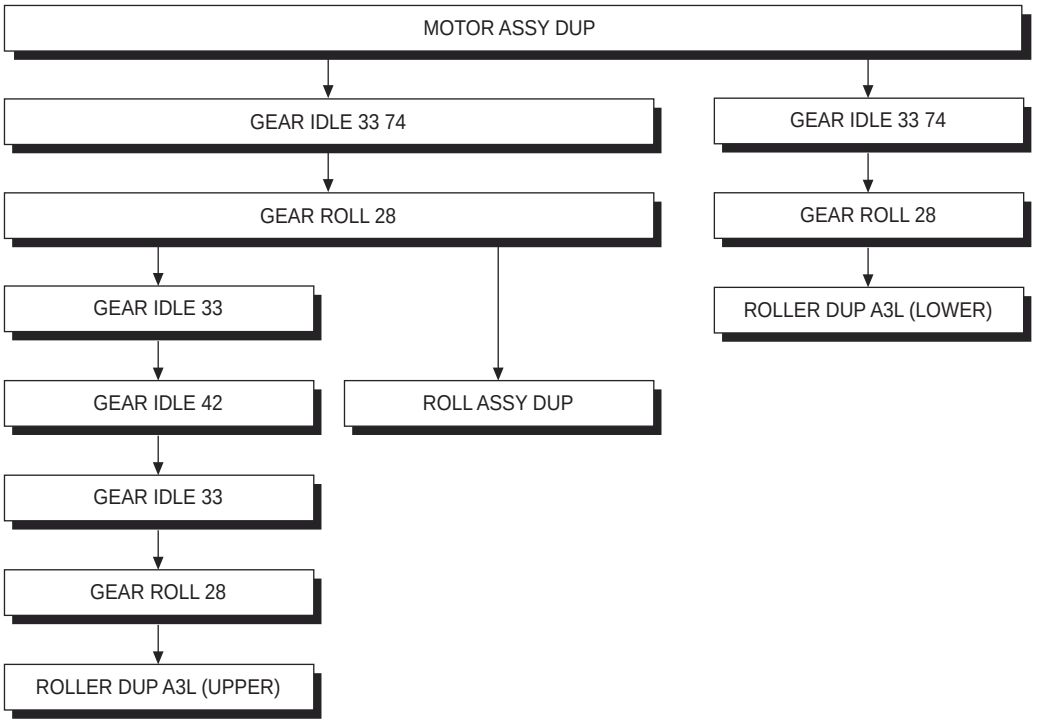
A4L	ON	ON

Duplex

Driving Force Transmission Path

MOTOR ASSY DUP

The rotating force of the MOTOR ASSY DUP is transmitted through the gears to components that need mechanical driving force as shown in the following flow.

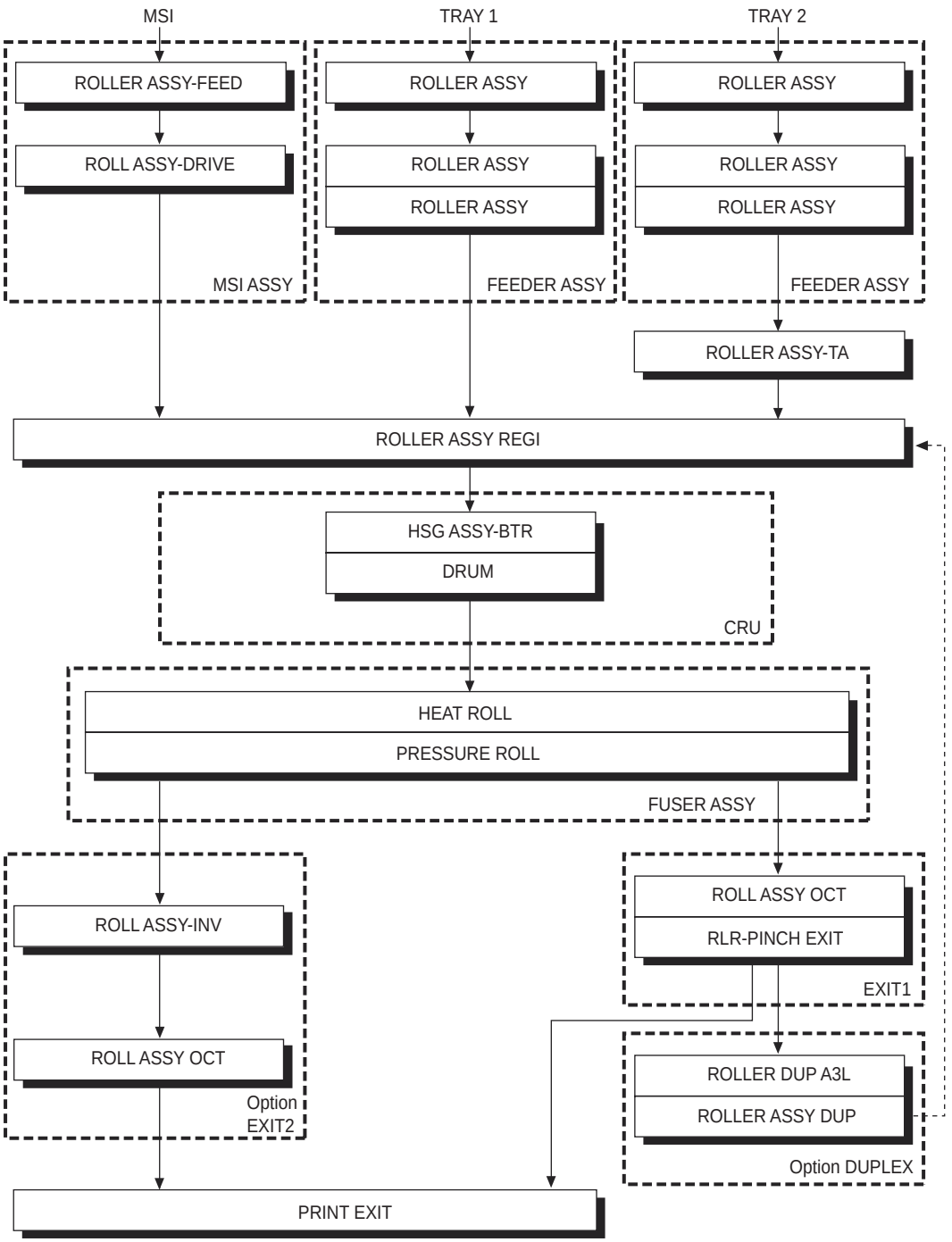


The transmitted driving force drives the ROLLER DUP A3L (UPPER), ROLLER ASSY DUP and ROLLER DUP A3L (LOWER) through the gears.

Paper Transport

Paper Transport Path

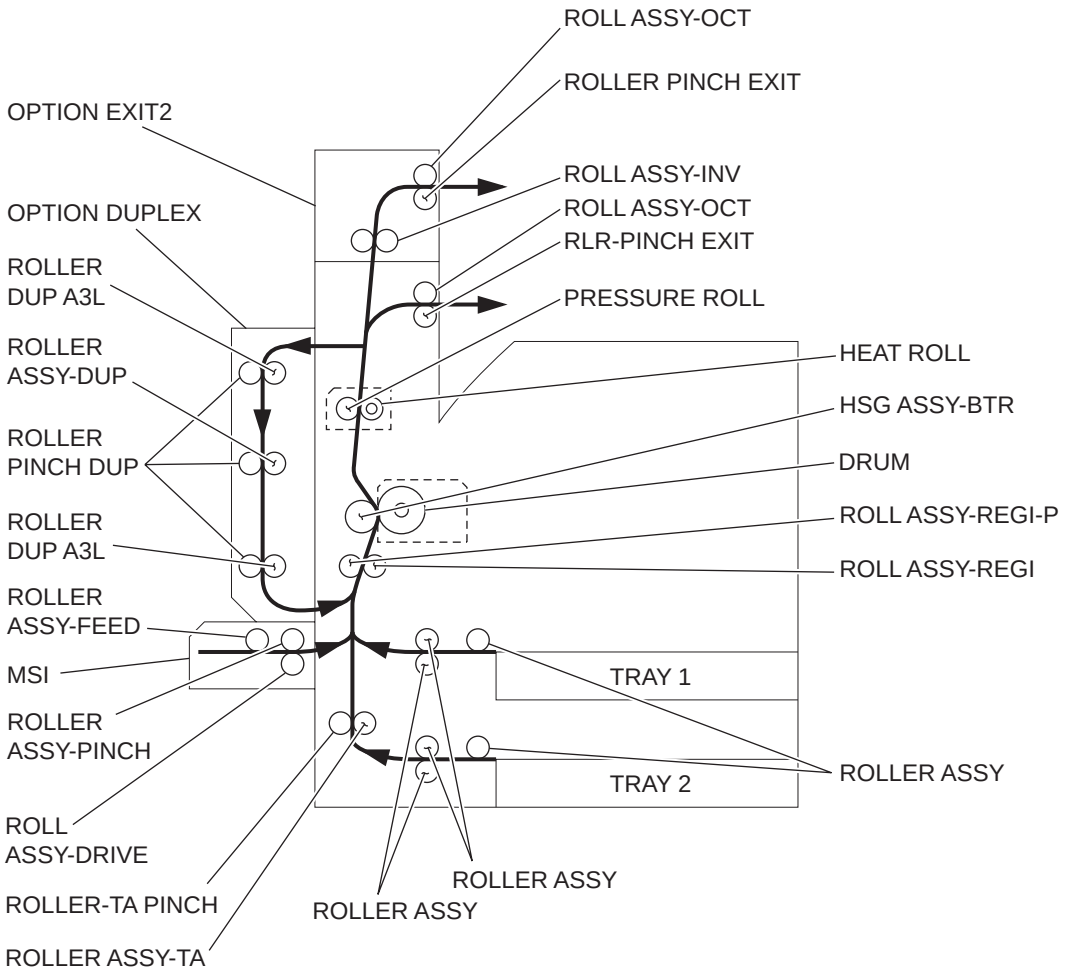
With the optional DUPLEX installed, paper is supplied from the MPF, Tray1 or Tray2, and is transported to the printer along the paper transport path shown below.



Layout of Paper Transport Path

The following figure illustrates the main components directly associated with the paper path and transport with the optional DUPLEX installed.

- Main components associated with transport of paper



Functions of Main Components

When the optional DUPLEX is installed to the left of the printer, duplex (double-sided) printing is available with the FIO laser printer.

The following outlines the functions of the main components of the DUPLEX.

SWITCH-I/L,CAB

The SWITCH-I/L,CAB detects open/close of the COVER DUP.

SENSOR-PHOTO IN

The SENSOR-PHOTO IN detects whether paper is remaining in the Duplex.

ROLLER DUP A3L (UPPER/LOWER) / ROLL ASSY DUP

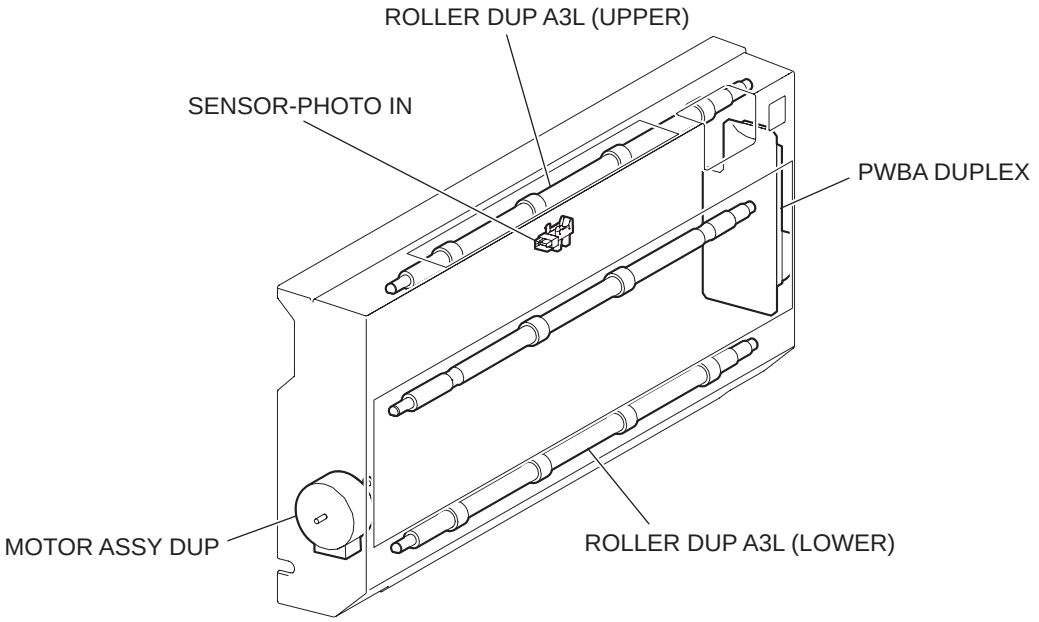
The ROLLER DUP A3L (UPPER), ROLLER DUP A3L (LOWER) and ROLL ASSY DUP re-feed the paper printed on the front side, through the Duplex to the printer to print on the rear side.

PWBA DUPLEX

The PWBA DUPLEX that contains a CPU controls paper feed in the Duplex upon receiving a command from the PWBA MCU F and sensor/switch information.

MOTOR ASSY DUP

The MOTOR ASSY DUP transmits driving force to the ROLLER DUP A3L (UPPER), ROLL ASSY DUP and ROLLER DUP A3L (LOWER) that feed paper.



Finisher

Overview

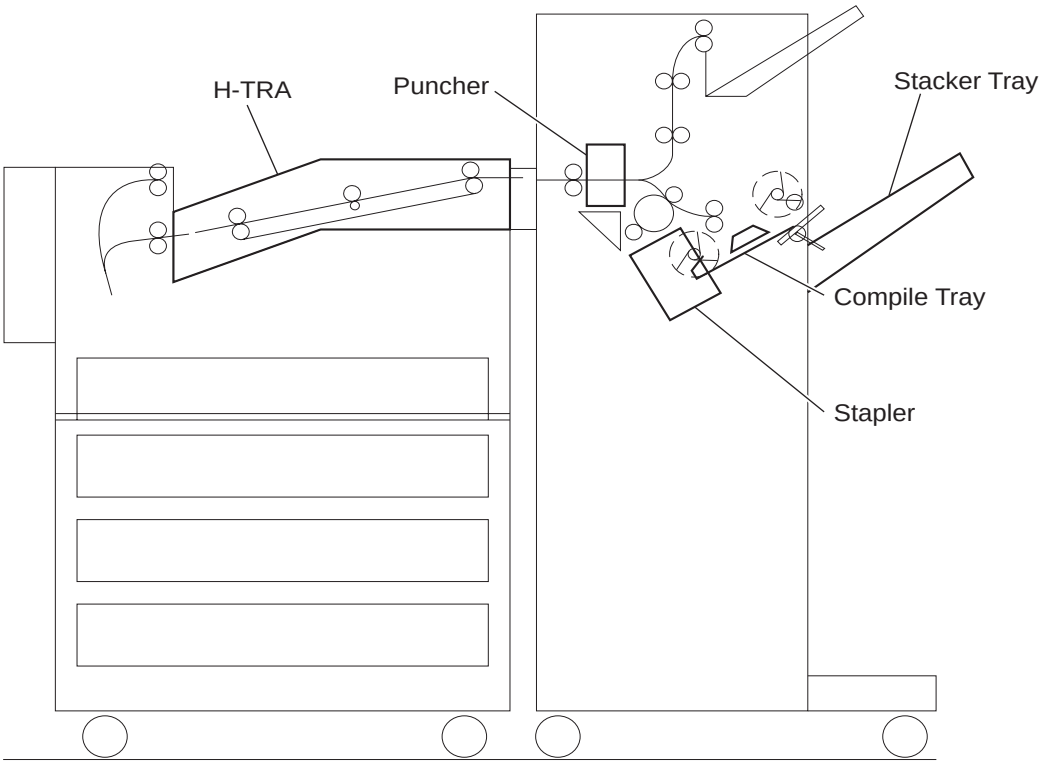
The Finisher performs post-processing, such as stapling, punching, and stacking paper transferred from the IOT, and ejects paper to the Top Tray or the Stacker Tray.

The following outlines the operation of the Finisher.

Configuration

The Finisher is composed of the following five blocks:

- Horizontal-Transport Block to feed paper from the IOT to the Finisher (called “H-TRA” hereafter)
- Puncher Block to punch paper
- Compile Tray Block to align paper
- Stapler Block to staple a set of paper at specified positions
- Stacker Tray Block to stack paper



Paper Size and Weight

The following shows paper sizes and weight that the Finisher can handle, as well as applicable functions for each paper size.

The IOT and the Finisher handle different paper sizes and weights. For this reason, if the IOT has printed paper that the Finisher cannot handle, the Exit Gate in the IOT is switched to eject the paper from Exit 2 onto the H-TRA.

Paper Size/Orientation and Applicable Functions

Paper size	Inches	SEF/ LEF	mm (Finished Size)	Top Tray	Stacker			
				Stack	Stack	Offset Stack	Punch (*1)	Staple
B5		SEF	182 x 257	Yes	No	No	No	No
		LEF		Yes	Yes	Yes	Yes 2	Yes
Executive	7.25 x 10.5	SEF	184.2 x 270	Yes	No	No	No	No
		LEF		Yes	Yes	Yes	Yes 2,3,4	No
Letter	8.5 x 11	SEF	215.9 x 279.4	Yes	Yes	Yes	Yes 2	Yes
		LEF		Yes	Yes	Yes	Yes 2,3,4	Yes
A4		SEF	210 x 297	Yes	Yes	Yes	Yes 2	Yes
		LEF		Yes	Yes	Yes	Yes 2,3,4	Yes
XXX	8,5 x 13	SEF		Yes	Yes	Yes	Yes 2	Yes
Legal	8.5 x 14	SEF		Yes	Yes	Yes	Yes 2	Yes
B4		SEF	257 x 364	Yes	Yes	Yes	Yes 2	Yes

A3		SEF	297 x 420	Yes	Yes	Yes	Yes 2,3,4	Yes
Ledger	11 x 17	SEF		Yes	Yes	Yes	Yes 2,3,4	Yes
Custom size	Same width with standard size			Yes	Yes	Yes	Yes	Yes
Custom size	Besides above			Yes	Yes (*2)	Yes (*2)	No	No

Note:

*1: Numbers (2, 3, 4) mean 2 holes, 3 holes, and 4 holes, respectively.

*2: Applicable within the following range:

Paper width: 203.2 - 297 mm

Paper length: 182 - 431.8 mm

Paper Wight

- For punching: 52 - 176 gsm
- For stapling:52 - 226 gsm (*1)
- For ejecting in the Stacker Tray:52 - 226 gsm
- For ejecting in the Top Tray:52 - 226 gsm

(*1: The amount of paper capable of being stapled will be less than 50 if paper weight is greater than 90 gsm.)

Functions and Applicable Trays

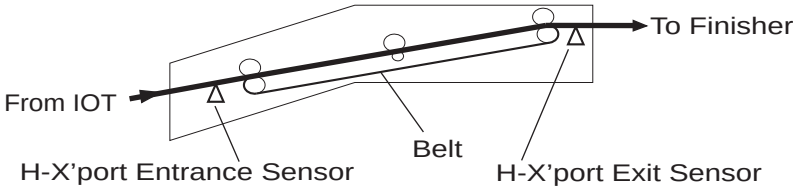
Processing	Destination of paper
No post-processing	Top Tray or Stacker Tray
Punching	Top Tray or Stacker Tray
Stapling	Stacker Tray
Punching & Stapling	Stacker Tray

Paper Transfer

This section describes transfer of paper from the IOT to a specified tray.

The following figures illustrate layouts (side view viewing from the front side) of sensors, rollers, and main blocks, as well as a layout (rear view) of the main components.

< H-TRA >



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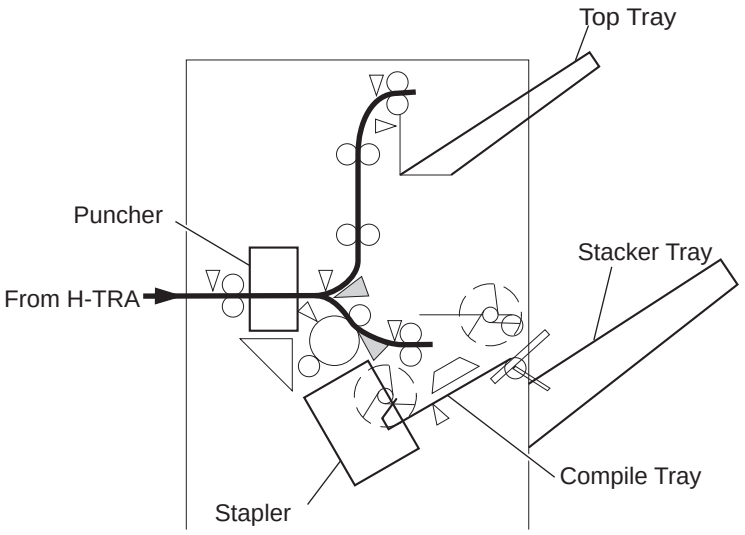
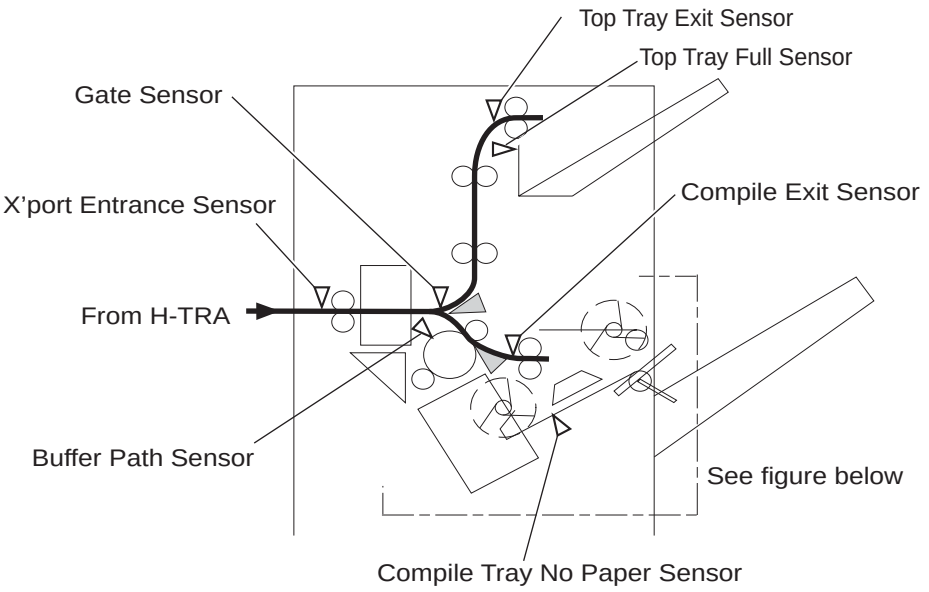
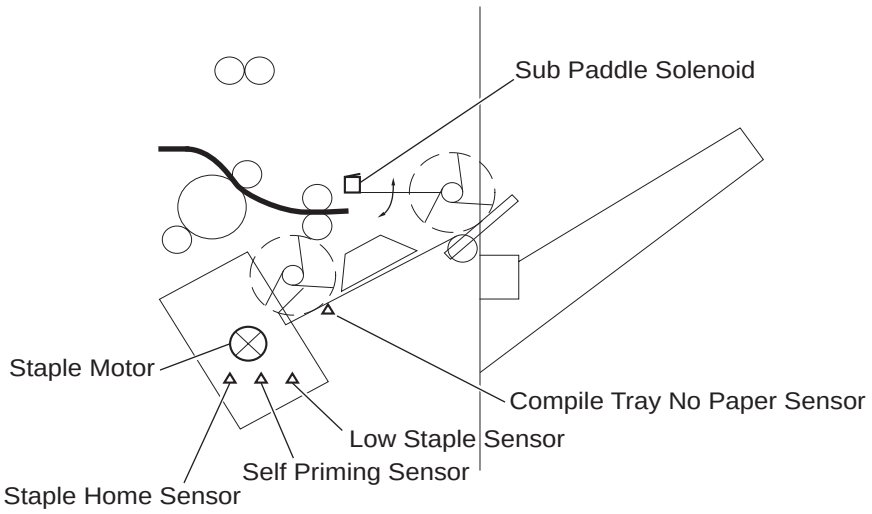
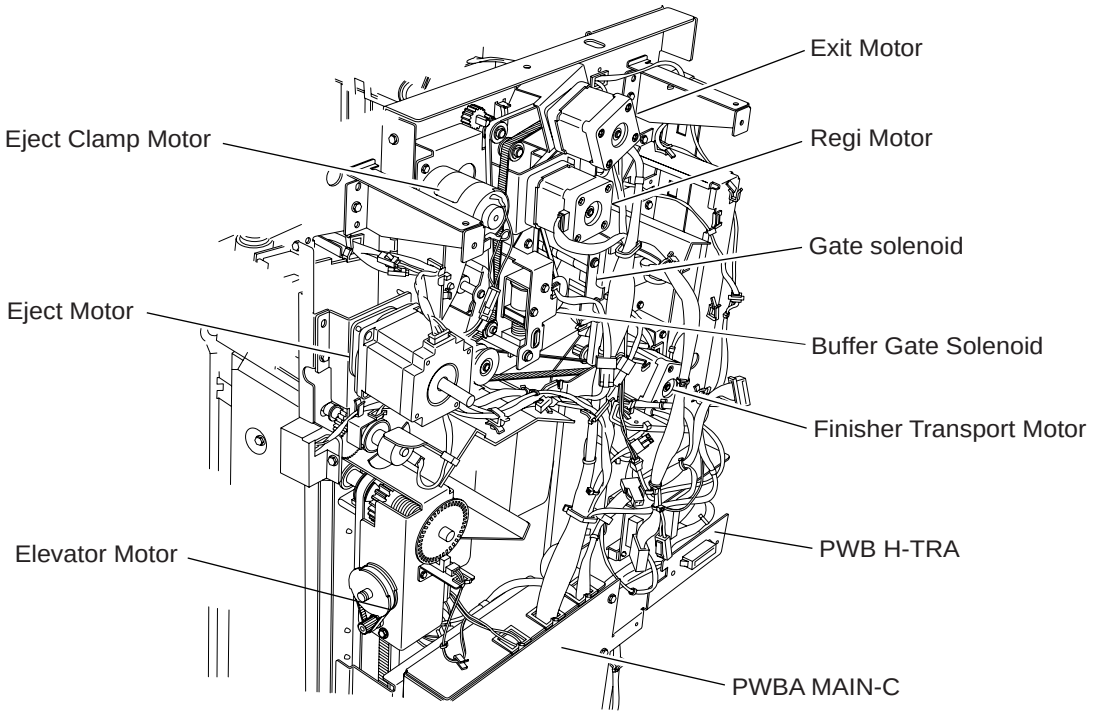
< Finisher >




Top Tray Exit Sensor
Top Tray Full Sensor
Gate Sensor
X'port Entrance Sensor
Compile Exit Sensor
From H-TRA
Buffer Path Sensor
See figure below
Compile Tray No Paper Sensor


Sub Paddle Solenoid
Staple Motor
Compile Tray No Paper Sensor
Low Staple Sensor
Self Priming Sensor
Staple Home Sensor

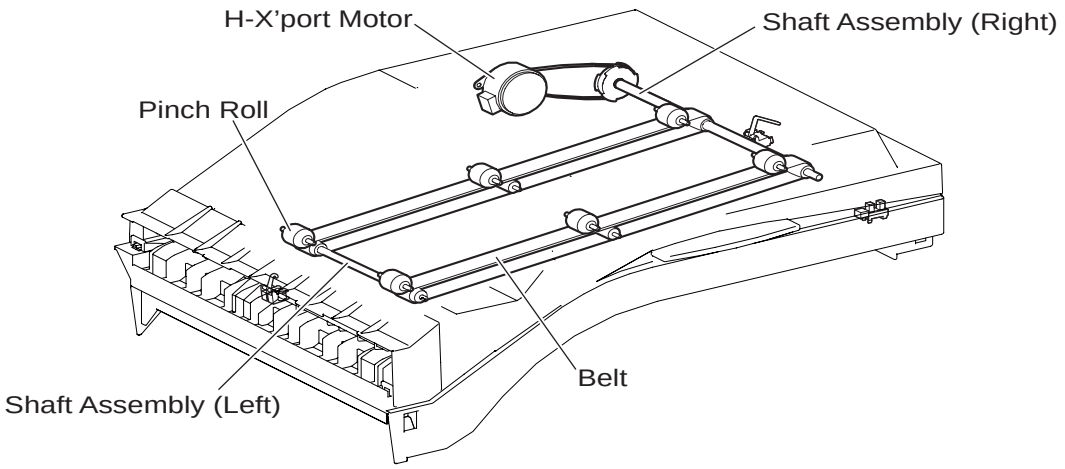


H-TRA

When the Finisher is designated by the command of IOT, the Exit Gate in the IOT opens and paper is fed from Exit 1 on the H-TRA.

The H-X'port Motor is activated by the trigger of IOT's Regi Clutch ON to drive the feed belts in the H-TRA. The motor power is transmitted to the two belts between Shaft Assembly (Right) and Shaft Assembly (Left).

The paper fed to the H-TRA is securely held between the belts and the Pinch Rolls, and fed to the Finisher.



From H-TRA to Puncher

The paper fed from the H-TRA is fed into the Finisher by the Roll Assy Ent located on the X'port section of the Finisher that is driven by the Finisher Transport Motor.

Paper route inside the Finisher is determined by the Transfer Gate.

The Transfer Gate is switched by the Transport Gate Solenoid ON/OFF controlled by the IOT.

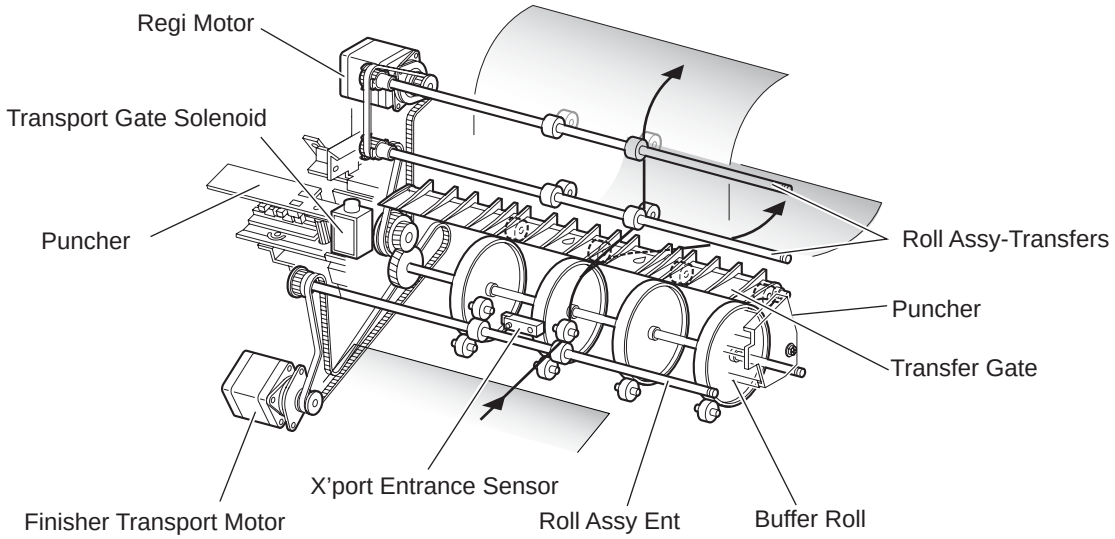
The paper is further fed in the Finisher by the Roll Assy-Transfers or the Buffer Roll that are driven by the Regi Motor, and passes through the Puncher.

The X'port Entrance Sensor becomes "LOW" upon detecting paper. After a certain time has passed from the level transition to "H", the Regi Motor that drives the Roll Assy-Transfers or the Buffer Roll, starts reverse rotation.

The paper is returned to the Puncher by the Roll Assy-Transfers or the Buffer Roll, and is stopped with its end gently pressed against the Guide Assy.

The stopper in the Guide Assy lies to let paper pass through when feeding paper to the exit (while the Regi Motor is rotating forward), but rises when paper is returned (while the Regi Motor is rotating reversely) to stop the paper.

Thus, punch hole positions in the paper feed direction are determined. (For determining punch hole positions in the paper width direction, see Section 3.)



From Puncher to Compile Tray

The paper is transferred to the Compile Tray by the Buffer Roll (driven by the Regi Motor) and by the Roll Assy-Exit Low (driven by the Exit Motor).

When the first paper reaches the Compile Tray, the Eject Clamp Motor is activated to lower the Eject Clamp so that the Eject Clamp and the Shaft Assy-Eject Roll can clamp the paper.

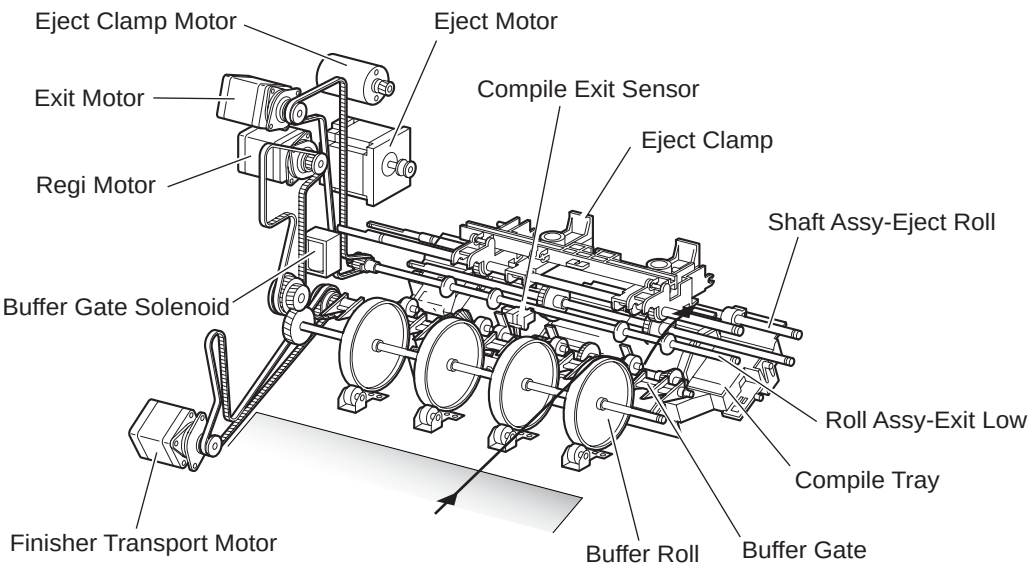
Thus, the paper transferred from the Puncher is held by the Shaft Assy-Eject Roll and the Eject Clamp driven by the Eject Motor, and is fed to the exit.

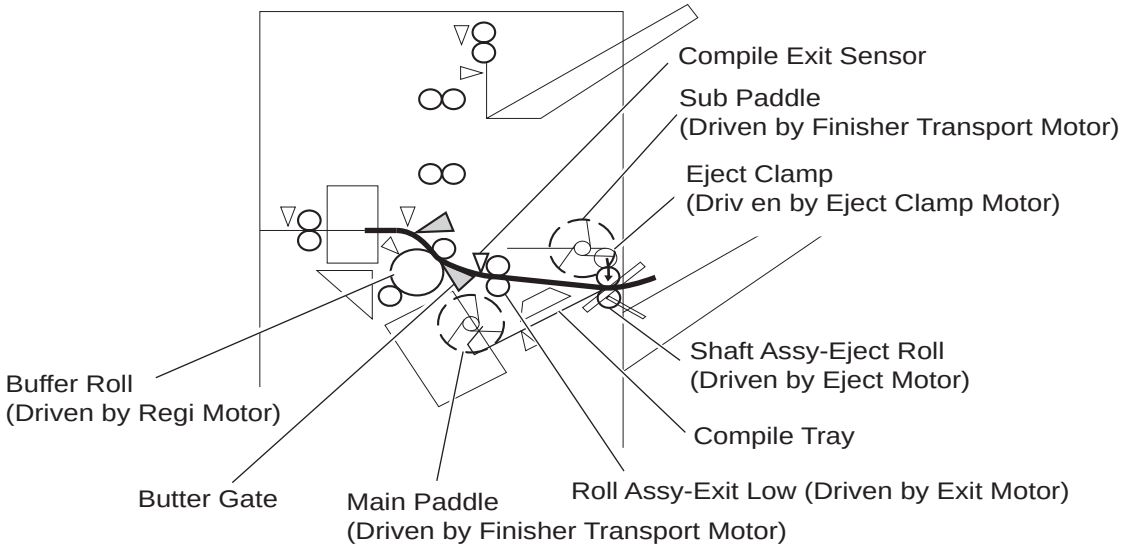
When the paper rear end passes through the Compile Exit Sensor, the Eject Motor starts reverse rotation to return the paper to the Compile Tray.

When the following paper reaches the Compile Tray, the Eject Clamp is raised and the paper that has passed through the Roll Assy-Exit Low falls on the Compile Tray.

At this time, the Main Paddle is rotated by the Shaft Assy-Paddle (driven by the Finisher Transport Motor) to feed the paper so that the paper rear end butts against the rear wall of the Compile Tray.

The Sub Paddle Solenoid of the Chute Assy Eject is activated to lower the Sub Paddle (driven by the Finisher Transport Motor) so that the paper can be fed to the Compile Tray.





When printing multiple sets, while stapling the first set on the Compile Tray or ejecting it to the Stacker Tray, the first paper of the second set shall not be fed to the Compile Tray.

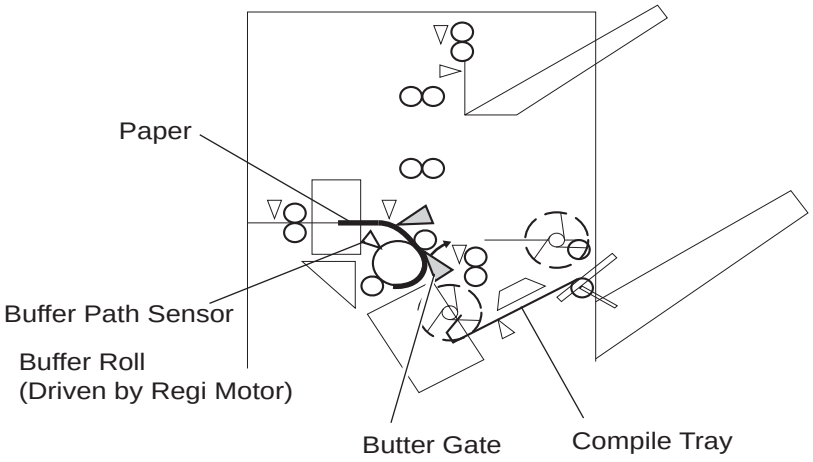
To this end, when the first paper of the second set reaches the Finisher, the Buffer Gate Solenoid is activated by the IOT command and by the X'port Entrance Sensor to switch the Buffer Gate.

Thus, the paper route is switched in the Buffer Roll's circumferential direction. (This operation is called "Buffer Path" hereafter.)

The first paper of the second set is aligned with the second paper, and then they are fed together to the Compile Tray.

Even for one sheet of paper, the Buffer Path operation is executed in the same way. The paper is stacked temporarily on the Compile Tray, and then ejected in the Stacker Tray.

After Buffer Path is executed for the first paper, if the second paper of a different size comes, the first paper is fed to the Compile Tray, but the second one is fed to the Compile Tray without Buffer Path. At this time, a certain delay time is provided to avoid the second paper from colliding with the first one.



From Compile Tray to Stacker Tray

Stapled paper on the Compile Tray (stapling mode) or aligned paper (non-stapling mode) are held between the Eject Clamp (lowered by the Eject Clamp Motor) and the Shaft Assy-Eject Roll.

The Shaft Assy-Eject Roll is driven by the Eject Motor to transferred paper to the Stacker Tray.

After paper is transferred to the Stacker Tray, it is held by the Paddle-Set Clamp attached to the Shaft Assy-Eject Roll.

From Puncher to Top Tray

The paper to be ejected to the Top Tray is switched the paper path by the Transfer Gate located behind the Puncher, and fed in the Roll Assy-Transfer direction.

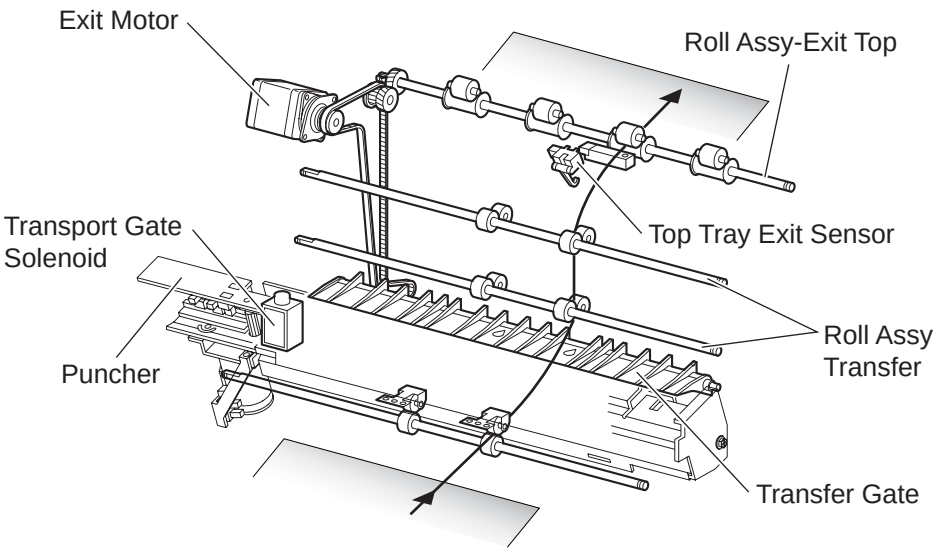
The Transfer Gate is switched by the Transport Gate Solenoid. While the solenoid is activated, paper is fed in the Roll Assy-Transfer direction.

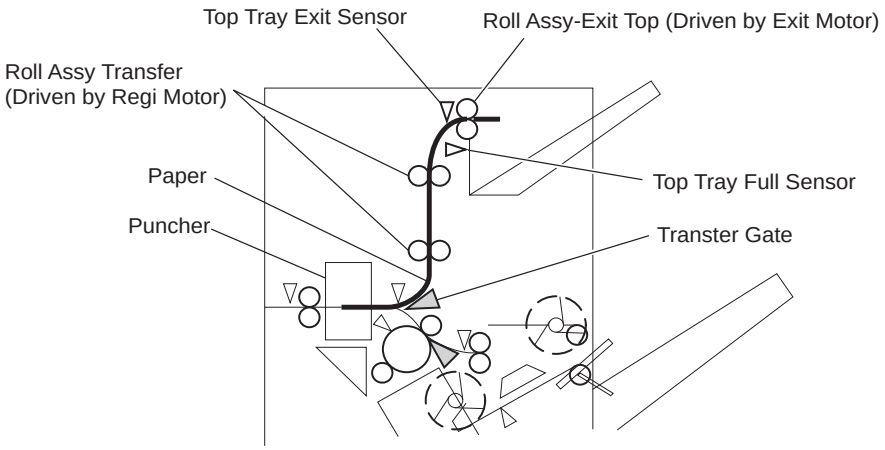
The two Roll Assy-Transfers driven by the Regi Motor feed paper to the Roll Assy-Exit Top at the top of the Finisher.

The Roll Assy-Exit Top driven by the Exit Motor to eject the paper to the Top Tray.

The Roll Assy-Exit Top decelerates after a pre-specified period of time from the following trigger events.

1. Models without puncher: ENT SNR transition to "Low".
2. Models with puncher: Restart of the Roll Assy-Exit Top after punching





Functions of Sensors along the Paper Path

H-TRA

1. H-X'port Entrance Sensor

   A photo-interrupter to detect whether paper is fed from the IOT to the H-TRA

   It turns "H" (+5 V) (light receiving) when paper enters the H-TRA.

2. H-X'port Exit Sensor

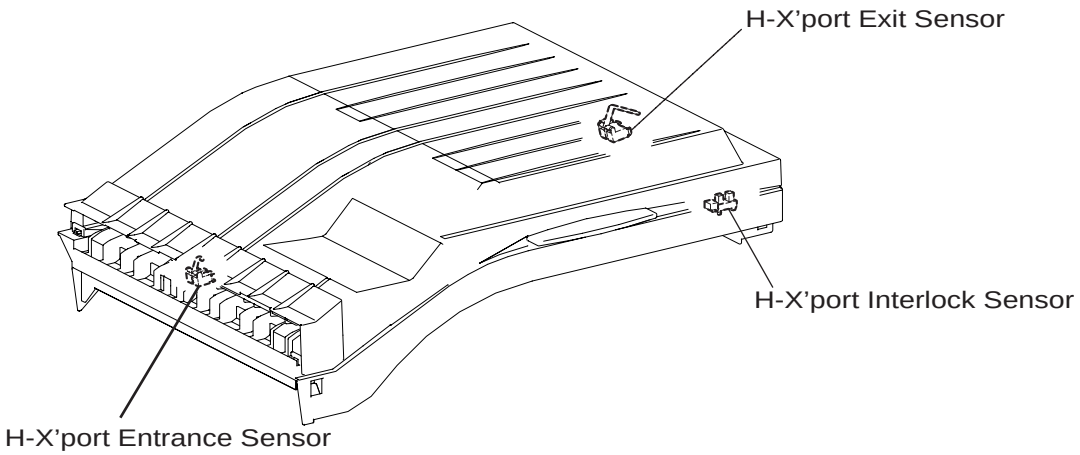
   A photo-interrupter to detect whether paper passes through the H-TRA

   It turns "H" (+5 V) (light receiving) when paper reaches this sensor, and turns "L" (0 V) when paper exits from the H-TRA.

3. H-X'port Interlock Sensor

   A photo-interrupter to detect open/close of the Cover Assy Top of the H-TRA

   It turns "H" (+5 V) (light receiving) when the Cover Assy Top opens.



Finisher

1. X'port Entrance Sensor

   A reflective photo-sensor to detect whether paper is fed from the H-TRA to the Finisher

   turns "H" (+5 V) while paper is present within the sensing area.

   When the level turns "H" due to the first paper of the second set during multi-set printing, activates the Buffer Gate Solenoid to switch the Buffer Gate so that the paper goes in the Buffer Roll's circumferential direction.

2. Gate Sensor

   A reflective photo-sensor to detect the front end of paper

   it turns "L" (0 V) when the front end reaches the sensing area.

3. Compile Exit Sensor

A photo-interrupter to detect whether paper passes through the Compile Exit Sensor

it turns “H” (+5 V) (light receiving) when the actuator is driven out of the sensing area by the paper.

When the level tunes “H”, activates the Front Tamper Motor and the Rear Tamper Motor on the Compile Tray.

This sensor is also used to control ON/OFF of the Eject Motor.

4. Compile Tray No Paper Sensor

A photo-interrupter to detect whether paper is present or not on the Compile Tray.

While paper is present, the actuator is outside the sensing area, and the sensor turns at “H” (+5 V) (light receiving).

5. Buffer Path Sensor

A photo-interrupter to detect whether paper is fed toward the Buffer Roll

While paper is present, the actuator is outside the sensing area, and the sensor turns at “H” (+5 V) (light receiving).

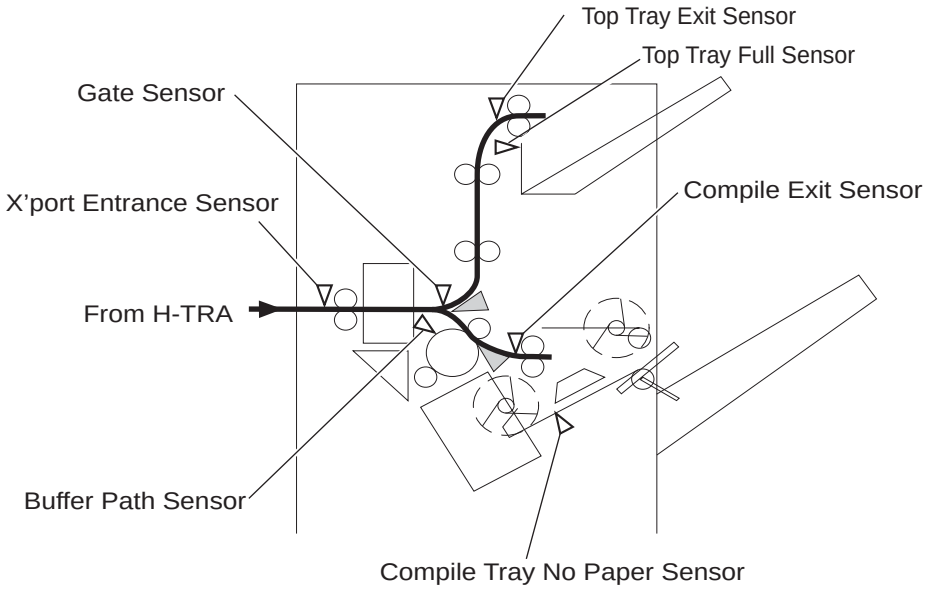
6. Top Tray Exit Sensor

A photo-interrupter to detect whether paper is fed to the Roll Assy-Exit Top at the exit side of the Top Tray

When the paper is fed, the actuator leaves from the sensing area, and the sensor tunes “H” (+5 V).

7. Top Tray Full Sensor

A reflective photo-sensor to detect the stack volume of paper in the Top Tray



Puncher

This section describes the paper punching operation of the Puncher.

Four types of Puncher are provided: 2/3-hole type, 2/4-hole type, 2-hole type and 3-hole type.

(For overseas specifications, 2/3-hole type, 2/4-hole type and 3-hole type are provided.)

The following explains the 2/3-hole type (2-hole/3-hole auto-switching).

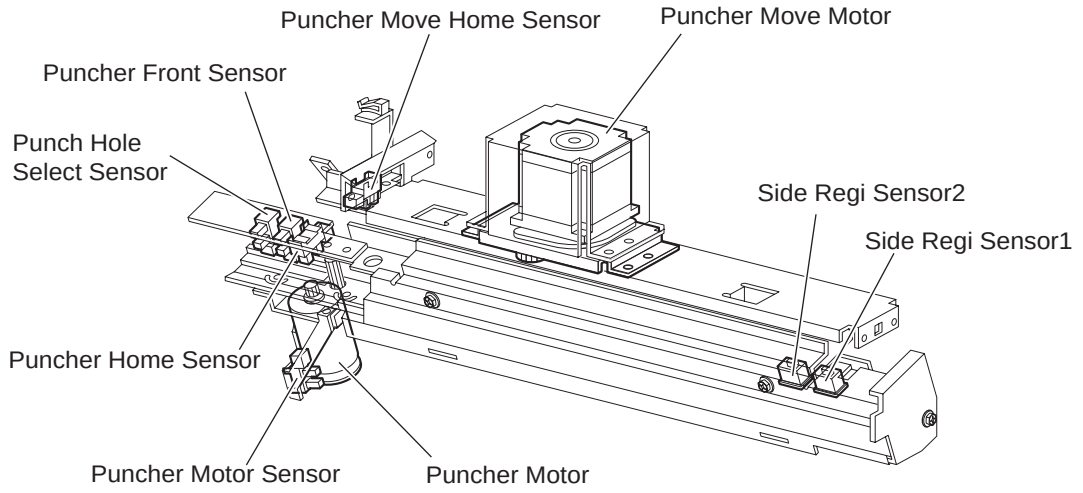
Every type has the same construction, except for the Punch Hole Select Sensor that is provided for the 2-hole type and 3-hole type only. But the sensor is not working currently.

Adjusting Punching Positions

The punching positions from the paper edge in the direction of feed are determined by gently pressing the paper against the Guide Assy (see Section 2.2).

While the punching positions from the paper edge in the direction of paper width are determined by the following method.

- Activate the Puncher Move Motor and move the Puncher to the front side until the Puncher Move Home Sensor turns “L”.
- Rotate reversely the motor and move the Puncher to the rear side until the sensor turns”H” to determine the home position.
- The Puncher Move Motor is run to move the puncher to the front until the Side Regi Sensor1 or 2 detects the paper edge, and then the puncher is further moved to the front according to the pulse-number determined by the paper size.(The Puncher Move Motor stops at this position.)



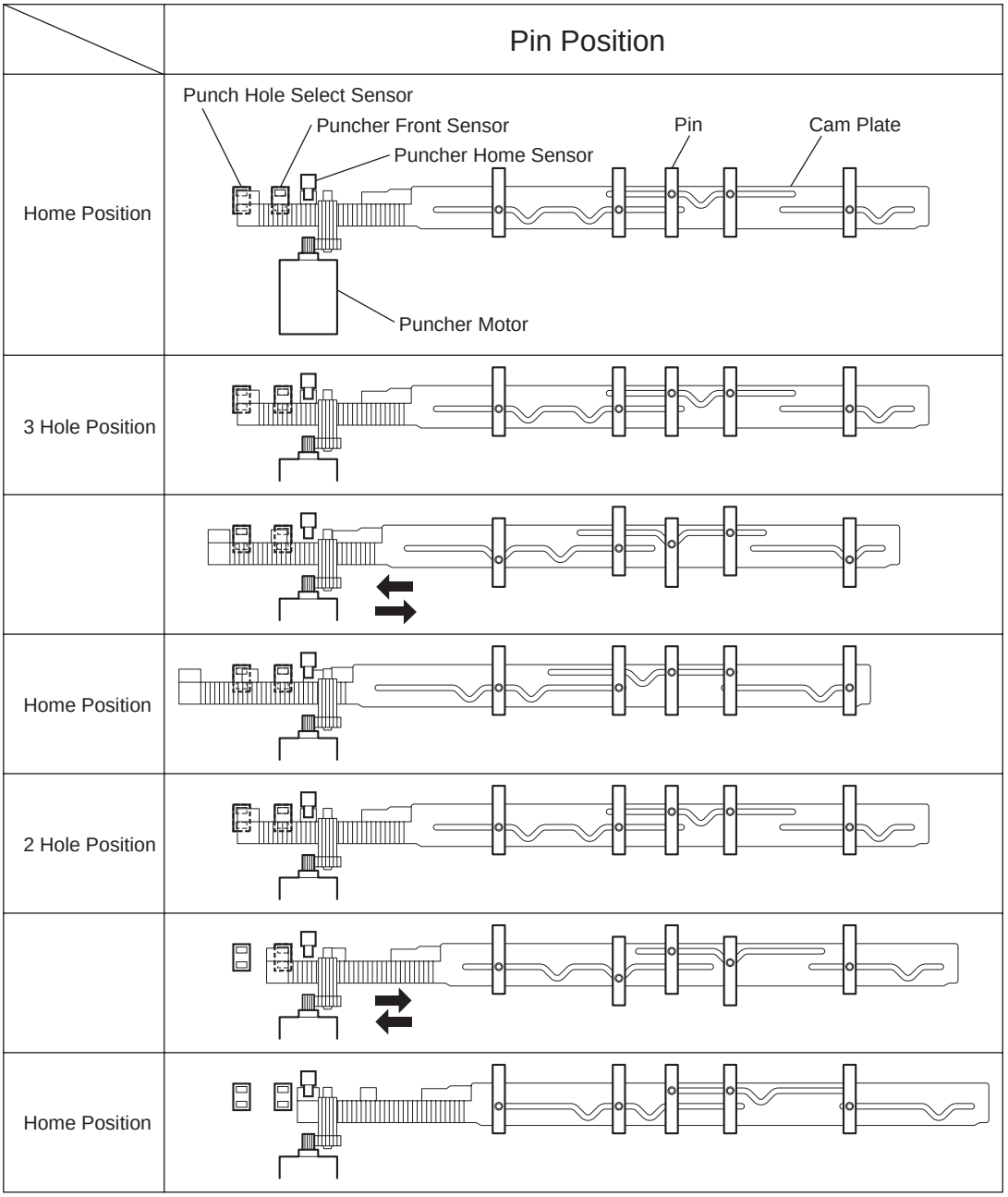
Punching

After punching positions are determined, activate the Puncher Motor to move the Cam Plate. With the movement of the Cam Plate, the pins descend along the guide holes to punch the paper.

This operation is performed for each sheet of paper.

The Cam Plate can lower the pins even while it is moving to the front or rear side.

The Puncher Motor is rotated forward or reversely for each sheet of paper, which is triggered by the Puncher Front Sensor ON/OFF.



Detecting Punch Dust Full

Punch dust is stored in the Punch Dust Box.

A sensor is provided to detect punch dust full.

When punch dust full is detected, it is notified to the operator only once.

Even if punch dust is not removed, the finisher can still punch paper. However it can spread punch dust inside the machine.

Detecting Punch Dust Box

The Punch Box Set Sensor detects whether the Punch Dust Box is properly set.

When the sensor does not detect that the box is properly set for four seconds, the punch dust box count is reset. This time period can be changed by rewriting the non-volatile memory.

Functions of Puncher Sensors/Motors

1. Side Regi Sensor 1

   A reflective photo-sensor to detect the side edge of large paper

   Paper side edge is detected by ON/OFF of this sensor while shifting the Puncher (containing this sensor) in the direction of paper width. The sensor remains at “H” (+5 v) while paper is present, and turns “L” when paper side edge is detected.

2. Side Regi Sensor 2

   A reflective photo-sensor to detect the side edge of small paper. This sensor has the same function as the Side Regi Sensor 1.

3. Puncher Move Home Sensor

   A photo-interrupter to detect the home position of the moving Puncher. It turns “H” (+5 v) (light blocking) when the home position is detected.

4. Puncher Home Sensor

   A photo-interrupter to detect the home position of the Cam Plate that lowers the punching pins. It turns “H” (+5 V) when the home position is detected.

5. Punch Hole Select Sensor

   A photo-interrupter to detect the rear position of the Cam Plate. It turns “H” (+5 V) when the rear position is detected. This sensor also detects the Cam position to switch punch holes (2-hole/3-hole).

6. Puncher Front Sensor

   A photo-interrupter to detect the front position of the Cam Plate. It turns “H” (+5 V) when the front position is detected. This sensor is used to determine to which side (front or rear) the Cam Plate should be moved.

7. Puncher Motor Sensor

   A photo-interrupter to detect pulse generated by the actuator attached to the Puncher Motor. It counts Puncher Motor revolutions, and becomes a trigger to stop the motor (by shutting off the current).

8. Puncher Move Motor

   A stepping motor to move the Puncher in the paper width direction

9. Puncher Motor

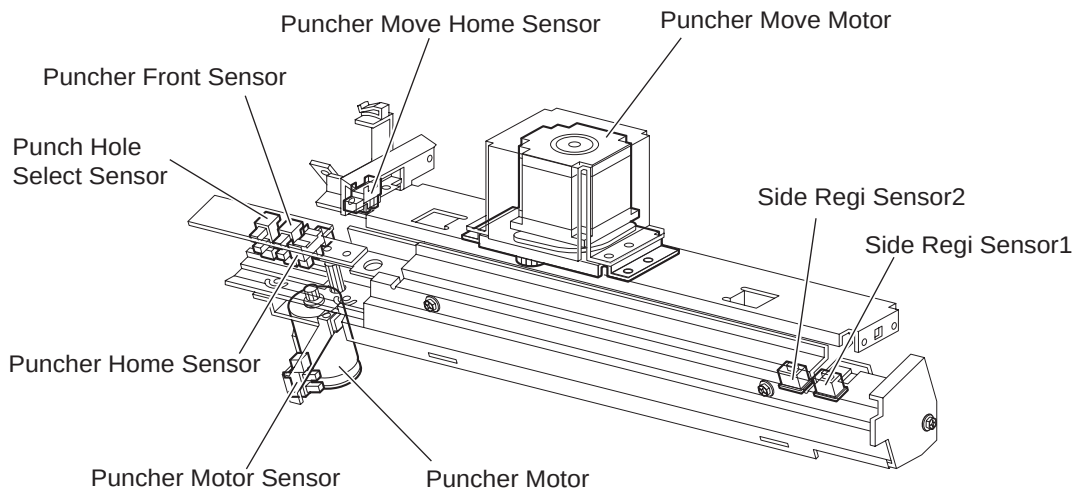
   A DC motor to move the Cam Plate that lowers the punching pins. Forward rotation of the motor moves the Cam Plate to the front side, and reverse rotation moves it to the rear side.

10. Punch Box Set Sensor

    A photo-interrupter to detect whether the Dust Box is properly set. When the Punch Dust Box is properly set, the actuator of the box blocks the light transmission of the sensor, which turns the sensor to “H” (+5 V).

11. Punch Full Sensor

    A photo-interrupter to detect the Punch Dust Box is filled with punch dust.



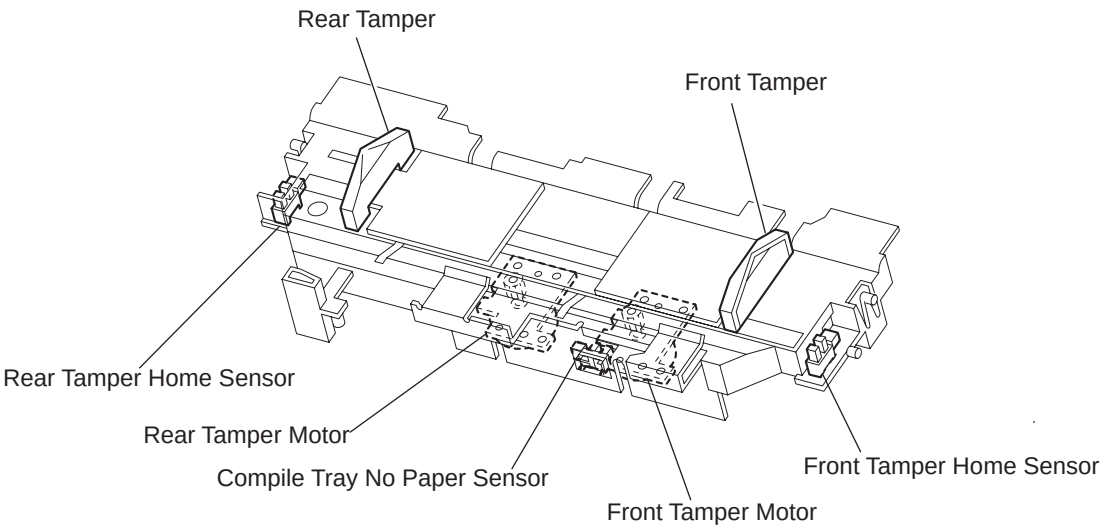
Compile Tray

This section describes the operation of the Compile Tray that aligns the paper edge transferred from the Puncher.

Outline of Operation

When paper is fed onto the Compile Tray, tamping operation is performed to align the paper edge in the paper width direction.

When ejecting stapled sets of paper to the Stacker Tray, if they are stacked in the Stacker Tray with the same staple position, the height of the stapled portion will increase. This will cause improper compiling of paper due to butting of the following paper. To prevent such improper compiling, offsetting is required by shifting the staple position between sets of paper.



Capacity of Compile Tray

Paper volume that can be stacked on the Compile Tray is limited as shown in the table below.

The number of sheets depends on whether paper is stapled or not, as well as on paper size.

If the number of sheets of one set to be stapled exceeds the limit, the exceeding sheets are not stacked on the Compile Tray, and are forcibly ejected to the Stacker Tray without being stapled.

This forcible ejection is performed to prevent damage to the Staple Assembly.

When feeding large paper in the non-staple mode, there may be a misalignment depending on paper characteristics. For this reason, the default paper capacity is set to a smaller value.

Compile Tray Paper Capacity

Condition	Min.	Default	Max.
Staple mode	2	50	75
For small paper (less than 216 mm in the feed direction) in non-staple mode	10	50	100
For large paper (216 mm or more in the feed direction) in non-staple mode	10	25	100

Compile Tray Operation with Multiple Paper Sizes

When two or more paper sizes are used and their widths are same (example: A4L and A3S), all the sheets are compiled and stapled as a set on the Compile Tray, and then ejected to the Stacker Tray.

While if two or more paper sizes with different paper width are used, stapling paper on the Compile Tray is stopped when a different size is detected. Such different-size sheets of paper are forcibly ejected to the Stacker Tray.

Tamping

When paper is fed from the Puncher to the Compile Tray, tamping operation is performed to align the paper in the paper width direction on the Compile Tray.

Tamping is an operation to align paper to the specified position on the Compile Tray using the Front Tamper or Rear Tamper by moving them to the end of paper by the respective motors.

Tamping is executed each time when a sheet of paper reaches the Compile Tray. Additional tamping is executed after tamping the last sheet.

There are three types of tamping.

- Front Tamping

  Tampering by the Rear Tamper with the Front Tamper fixed at the home position
- Rear Tamping

  Tampering by the Front Tamper with the Rear Tamper fixed at the home position
- Center Tamping

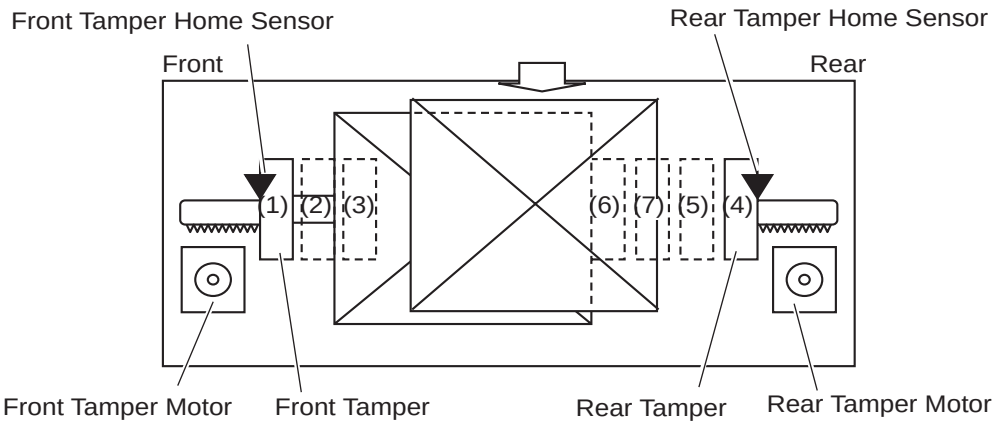
Tampering by the Front and Rear Tampers to align paper to the almost center

Front Tamping

Front Tamping is used in the following cases.

- In the non-staple mode
- When executing front stapling (corner)

The tamper positions during Front Tamping are shown below:

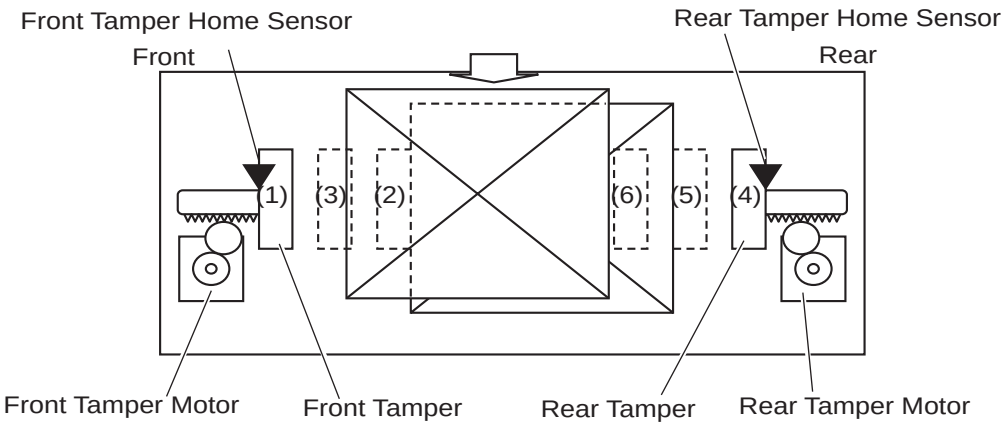


1. Front Tamper home position (Front Tamper Home Sensor position)
2. Front Tamper size position
3. Front Tamper offset position
4. Rear Tamper home position (Rear Tamper Home Sensor position)
5. Rear Tamper standby position
6. Rear Tamper tamping position
7. Rear Tamper offset position

Rear Tamping

Rear Tamping is used in the following cases.

- When executing rear stapling (corner)
- When executing dual stapling
- The tamper positions during Rear Tamping are shown below:



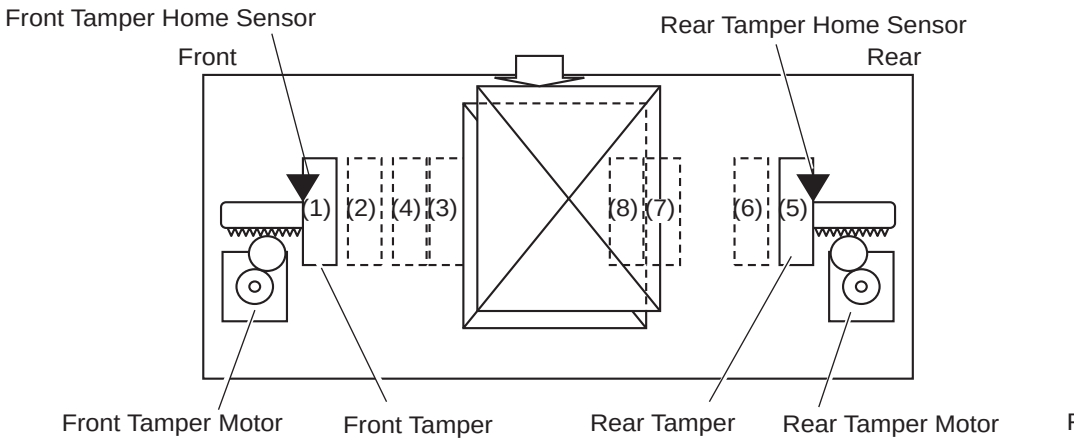
1. Front Tamper home position (Front Tamper Home Sensor position)
2. Front Tamper tamping position
3. Front Tamper offset position
4. Rear Tamper home position (Rear Tamper Home Sensor position)
5. Rear Tamper size position
6. Rear Tamper offset position

Center Tamping

Center Tamping is used in the following case.

- When executing rear stapling (straight)

The tamper positions during Center Tamping are shown below:



1. Front Tamper home position (Front Tamper Home Sensor position)
2. Front Tamper standby position
3. Front Tamper tamping position
4. Front Tamper offset position
5. Rear Tamper home position (Rear Tamper Home Sensor position)
6. Rear Tamper standby position
7. Rear Tamper size position
8. Rear Tamper offset position

Determining Tamper Home Position

When the Compile Exit Sensor turns “H” (+5 V) (light receiving), the Front and Rear Tamper Motors on the Compile Tray are activated, and the Front and Rear Tampers start moving.

The Front Tamper home position is determined when the Front Tamper enters the Front Tamper Home Sensor sensing area.

In the same way, the Rear Tamper home position is determined when the Rear Tamper enters the Rear Tamper Home Sensor sensing area.

Tamping

Tamping is executed after a preset time has passed after the Compile Tray No Paper Sensor turns “H” (+5 V) when paper is detected on the Compile Tray.

Offsetting

Offsetting is an operation to shift the position of paper to be ejected to the Stacker Tray so that boundaries between paper units (sets of paper, job unit, etc.) can be easily recognized.

Offsetting is executed for staple positions.

During Front Stapling (Corner)

Shifts stapled sheets using the Front Tamper by 20 mm to the rear side before ejecting them to the Stacker Tray.

During Rear Stapling (Corner/Straight)

For paper with a width of 216 mm or more [Rear Staple (Corner)]:

Shifts stapled sheets using the Rear Tamper by 20 mm to the front side before ejecting them to the Stacker Tray.

For paper with a width of less than 216 mm [Rear Staple (Straight)]:

Shifts stapled sheets using the Front Tamper by 9 mm to the rear side before ejecting them to the Stacker Tray.

During Dual Stapling

Shifts stapled sheets using the Front Tamper by 9 mm to the rear side before ejecting them to the Stacker Tray.

Offsetting is not executed (0 mm) for small paper.

Functions of Compile Tray Sensors/Motors

1. Compile Tray No Paper Sensor

   A photo-interrupter to detect whether paper is present or not on the Compile Tray. When paper is detected, the actuator leaves the sensing area, which turns the sensor to “H” (+5 V) (light receiving).

2. Front Tamper Home Sensor

   A photo-interrupter to detect the Front Tamper home position. When the Front Tamper comes to the home position, it enters the sensor’s sensing area, which turns the sensor to “H” (+5 V) (light blocking).

3. Rear Tamper Home Sensor

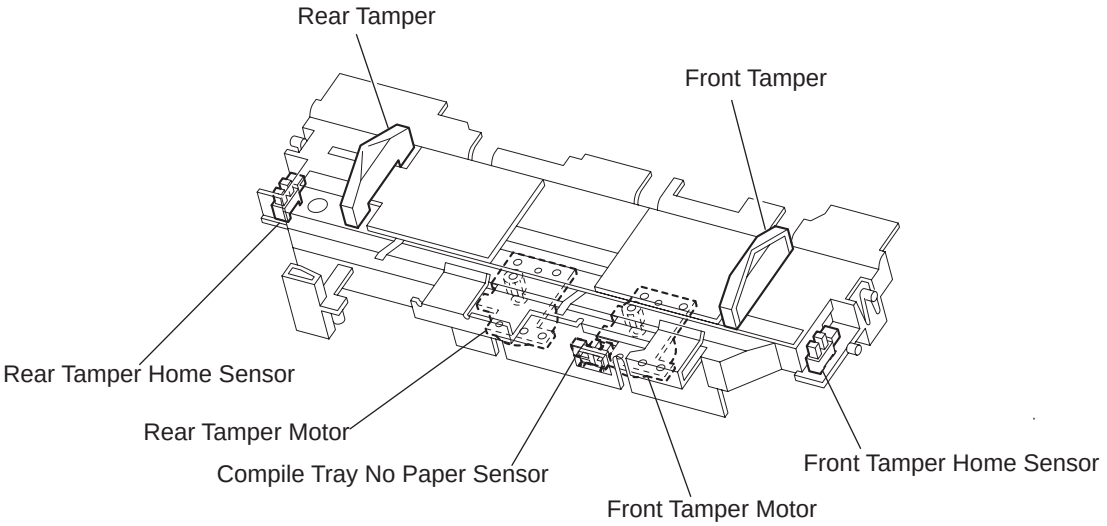
   A photo-interrupter to detect the Rear Tamper home position. When the Rear Tamper comes to the home position, it enters the sensor’s sensing area, which turns the sensor to “H” (+5 V) (light blocking).

4. Front Tamper Motor

   A stepping motor to move the Front Tamper for tamping. Clockwise rotation of this motor moves the Front Tamper to the rear side. Counterclockwise rotation of this motor moves the tamper to the front side.

5. Rear Tamper Motor

   A stepping motor to move the Rear Tamper for tamping. Clockwise rotation of this motor moves the Rear Tamper to the front side. Counterclockwise rotation of this motor moves the tamper to the rear side



Stapler

This section describes the operation of the Stapler.

Stapling Operation

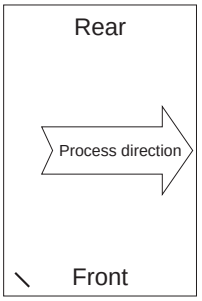
Sheets of paper fed from the Puncher are tamped on the Compile Tray, and then stapled at specified positions by the command of IOT.

Staple Positions

There are the following four stapling modes.

Front Staple (Corner) [Front Corner]

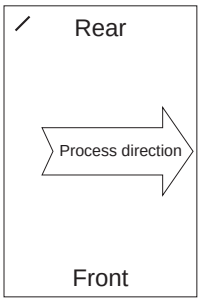
The Stapler staples a set of paper obliquely (45 degrees) after the Rear Tamper aligns the paper to the front side.



Rear Staple (Corner) [Rear Corner]

This type of stapling is applied for paper with a width of 216 mm or more.

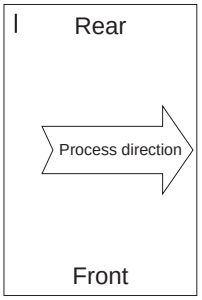
The Stapler moves to the rear corner and staples a set of paper obliquely (45 degrees) after the Front Tamper aligns the paper to the rear side.



Rear Staple (Straight) [Rear Straight]

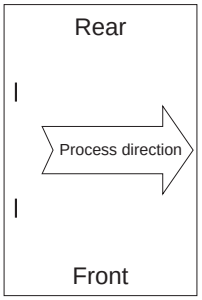
This type of stapling is applied for paper with a width of less than 216 mm.

The Stapler staples a set of paper in parallel with the paper edge after the Front Tamper aligns the paper to the rear side.



Dual Staple [Dual]

The Stapler staples a set of paper at fixed positions (front/rear sides) in parallel with the paper edge, after the Front Tamper aligns the paper to the specified position for each paper size.



Paper Sizes That Allow Stapling

Paper size that allows stapling depends on stapling positions.

The following table shows paper sizes and the applicability of stapling for each staple position.

	Front Corner	Rear Corner	Rear Straight	Dual
A3SEF	Yes	Yes	No	Yes
A4LEF	Yes	Yes	No	Yes

11 x 17SEF	Yes	Yes	No	Yes
8.5 x 11LEF	Yes	Yes	No	Yes
8KSEF(GCO), 16KLEF(GCO)	Yes	Yes	No	Yes
B4SEF, B5LEF	Yes	Yes	No	Yes
8 x 10LEF	Yes	Yes	No	Yes
8.5 x 14SEF / 8.5 x 13SEF / 8.5 x 11SEF	Yes	No	Yes	Yes
A4SEF	Yes	No	Yes	Yes
8 x 10SEF	Yes	No	Yes	Yes

Yes: Applicable

No: Not applicable

0.1 Stapling One Sheet

Upon receiving the stapling command from the IOT with one sheet remaining on the Compile Tray, the Finisher ejects the paper to the Stacker Tray without stapling it.

0.2 Stapling Multi-Size Paper

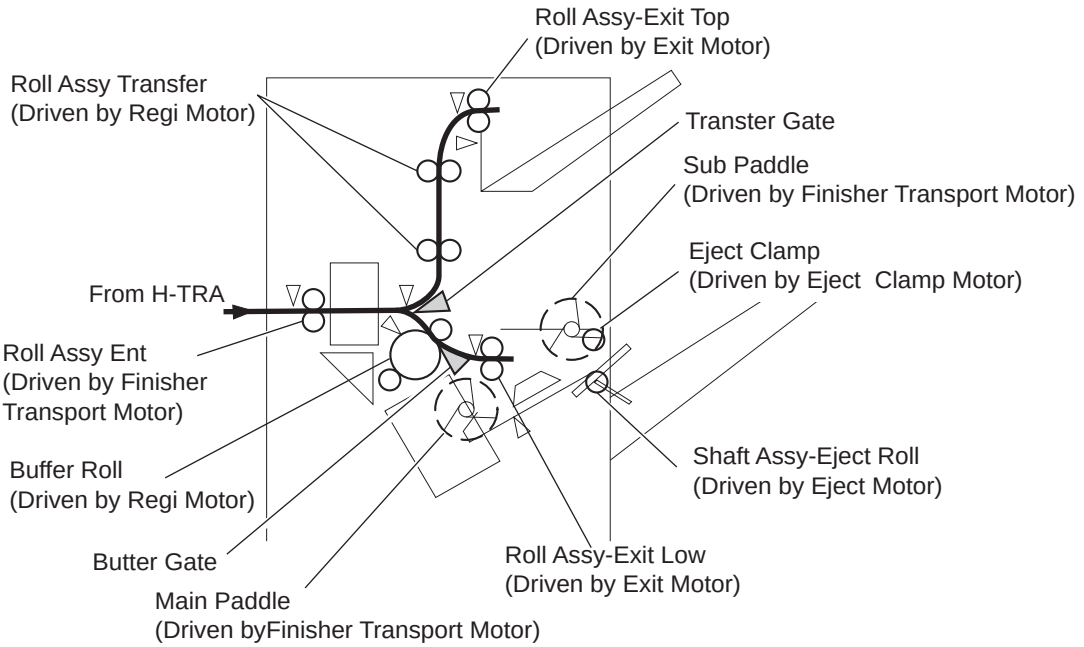
When sheets with different sizes and same width (example: A4L and A3S) are present on the Compile Tray, all the sheets are stapled, and then ejected to the Stacker Tray.

While if sheets with different widths are present on the Compile Tray, stapling is stopped when a different width is detected. Such different-width sheets are forcibly ejected to the Stacker Tray.

0.3 Paper Limits for Stapling

The number of sheets to be stapled is limited to prevent damage to the Stapler.

- If the number of sheets of one set to be stapled exceeds the limit of the Compile Tray, the exceeding sheets are not stacked on the Compile Tray, and are forcibly ejected to the Stacker Tray without being stapled.
- After the forcible ejection of paper, if the number of following sheets of one set to be stapled exceeds the limit of the Compile Tray, the exceeding sheets are also ejected forcibly to the Stacker Tray without being stapled.
- After that, even if the number of following sheets of one set to be stapled falls within the limit, the sheets are also ejected forcibly to the Stacker Tray without being stapled.



Upper limit of Compile Tray paper capacity when stapling: default: 50 (variable (10 to 100) by the non-volatile memory),

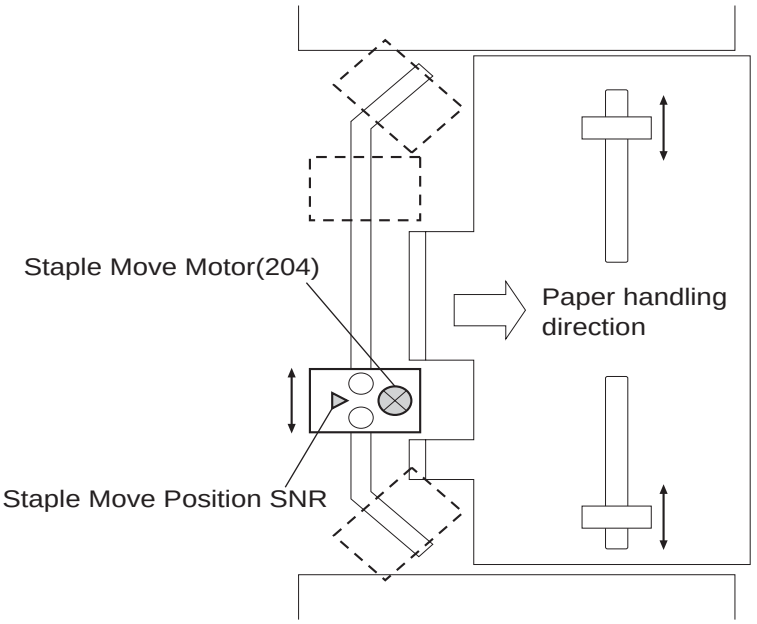
0.4 Stapler Operation

The Stapler stays at the front home position, that is, at the Front Staple (Corner) position when the power is turned ON.

The Stapler starts stapling when a set of sheets to be stapled is stacked on the Compile Tray.

The Stapler does not move during stapling in the Front Staple mode.

In any mode other than the Front Staple mode, the Stapler moves to the specified position, and then perform stapling



Stapler Head

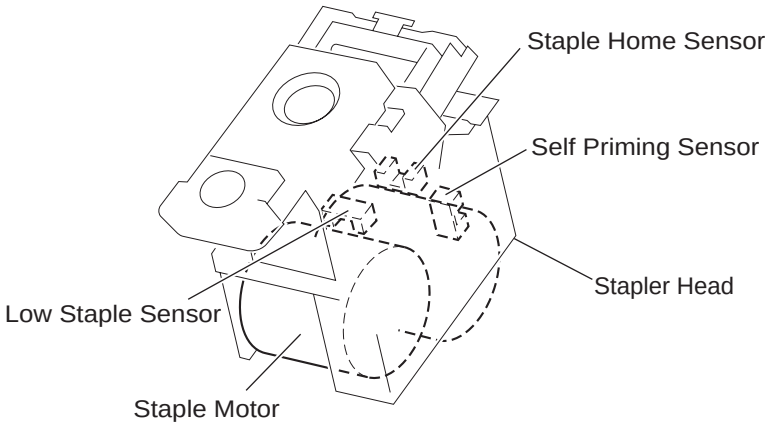
Stapling operation is executed by closing the Stapler Head.

The Stapler Head, containing the Staple Motor, the Staple Home Sensor, the Self Priming Sensor, and the Low Staple Sensor, is activated by the Staple Motor.

Forward (clockwise) rotation of the motor drives the Stapler to staple a set of sheets, and returns the stapling unit to the home position.

If stapling fails, the motor rotates reversely (counterclockwise) to return the Stapler Head to the home position.

When staples become low, the Low Staple Sensor detects it and stapling stops automatically displaying an alarm message. The message is also displayed when the Staple Cartridge is not installed.



Functions of Stapler Sensors/Motors

1. Stapler Move Home Position Sensor

   A photo-interrupter to detect the Stapler home position, Rear Staple (Corner) position, and Rear Staple (Straight) position. It turns “H” (+5 V) (light blocking) when the Stapler comes at the specified position.

2. Stapler Move Motor

   A DC motor to move the Stapler Head. Clockwise rotation of this motor moves the Stapler Head to the rear side, while counterclockwise rotation moves the Stapler Head to the front side.

3. Low Staple Sensor (in the Stapler Head). A photo-interrupter to detect near end of staples

   It turns “H” (+5 V) when staples become 20 staple left.

4. Self Priming Sensor (in the Stapler Head)

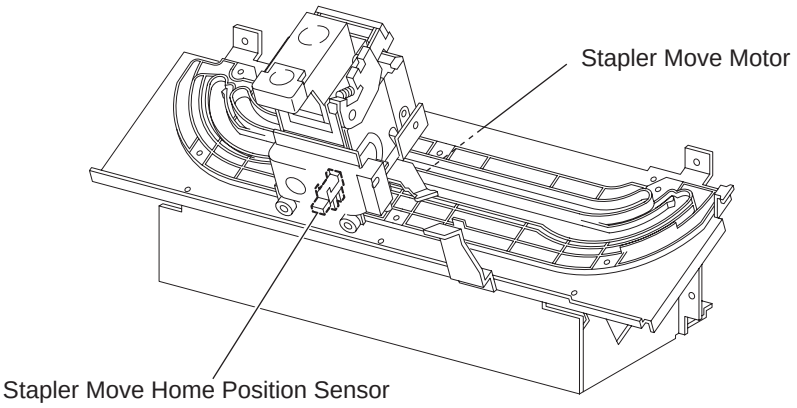
   A photo-interrupter to detect that staples are at the Stapler Head end, and also to detect failure in stapling. “L” (0 V) (light blocking) when stapling is ready.

5. Staple Home Sensor (in the Stapler Head)

   A photo-interrupter to detect the Stapler Head home position, and also to detect failure in stapling. This sensor also functions as a trigger to stop the Staple Motor. It turns “L” (0 V) (light blocking) while the Stapler Head stays at the home position.

6. Staple Motor (in the Stapler Head)

   A DC motor to activate the Stapler Head for stapling. Clockwise rotation of this motor enables stapling, while counterclockwise rotation returns the Stapler Head.



Operation

The Top Tray contains the Top Tray Full Sensor to detect the paper stack volume in the Top Tray.

Once the sensor detects “full stack” (500 sheets) of the Top Tray, ejection of paper to the Top Tray is inhibited until “full stack” is reset.

Functions of Top Tray Sensors

1. Top Tray Exit Sensor

   A photo-interrupter to detect that paper has come to the Roll Assy-Exit Top at the exit of the Top Tray. When paper reaches the Roll Assy-Exit Top, the actuator leaves the sensing area, which turns the sensor to “H” (+5 V).

2. Top Tray Full Sensor

   A reflective photo-sensor to detect the paper stack volume in the Top Tray. It turns”H” (+5 V) when it detects “full stack”.

Stacker Tray

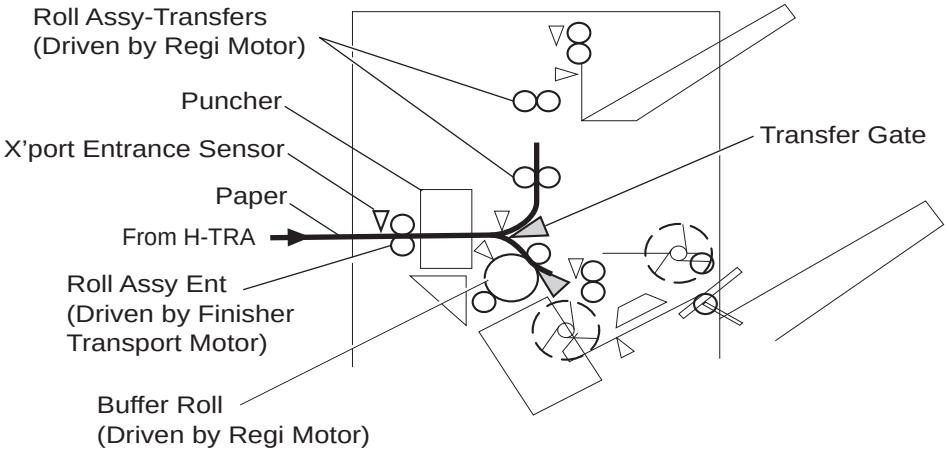
The Stacker Tray goes up and down to an appropriate position according to the volume of paper fed from the Compile Tray so as to properly stack paper to “full stack”.

Operation

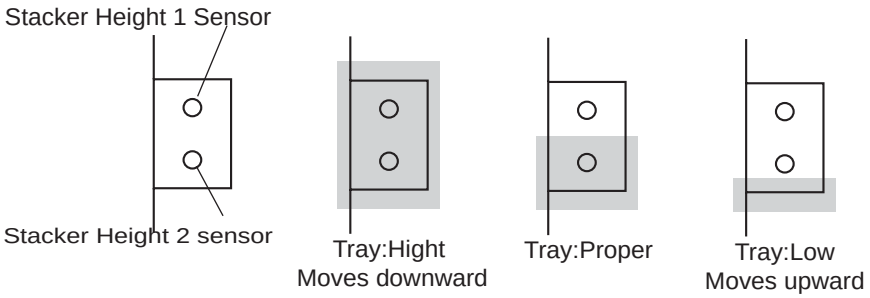
The Stacker Tray moves to an appropriate position according to the volume of paper fed from the Compile Tray. The Stacker Height Sensor 1 and the Stacker Height Sensor 2 detect the height of paper in the Stacker Tray, and the Stacker Encode Sensor determines the volume of paper in the tray.

When paper or the Stacker Tray comes between the light emitter and the photo-receiver of the Stacker Height Sensor 1 and Stacker Height Sensor 2, the emitted light is blocked and the sen-

sors turn “H”. The height of paper or the Stacker Tray is detected based on the levels of these sensors.



This sensor information is used to control the Elevator Motor. The motor is activated to move the Stacker Tray while the Stacker Height Sensor 1 turns into the light blocking state to the light receiving state.

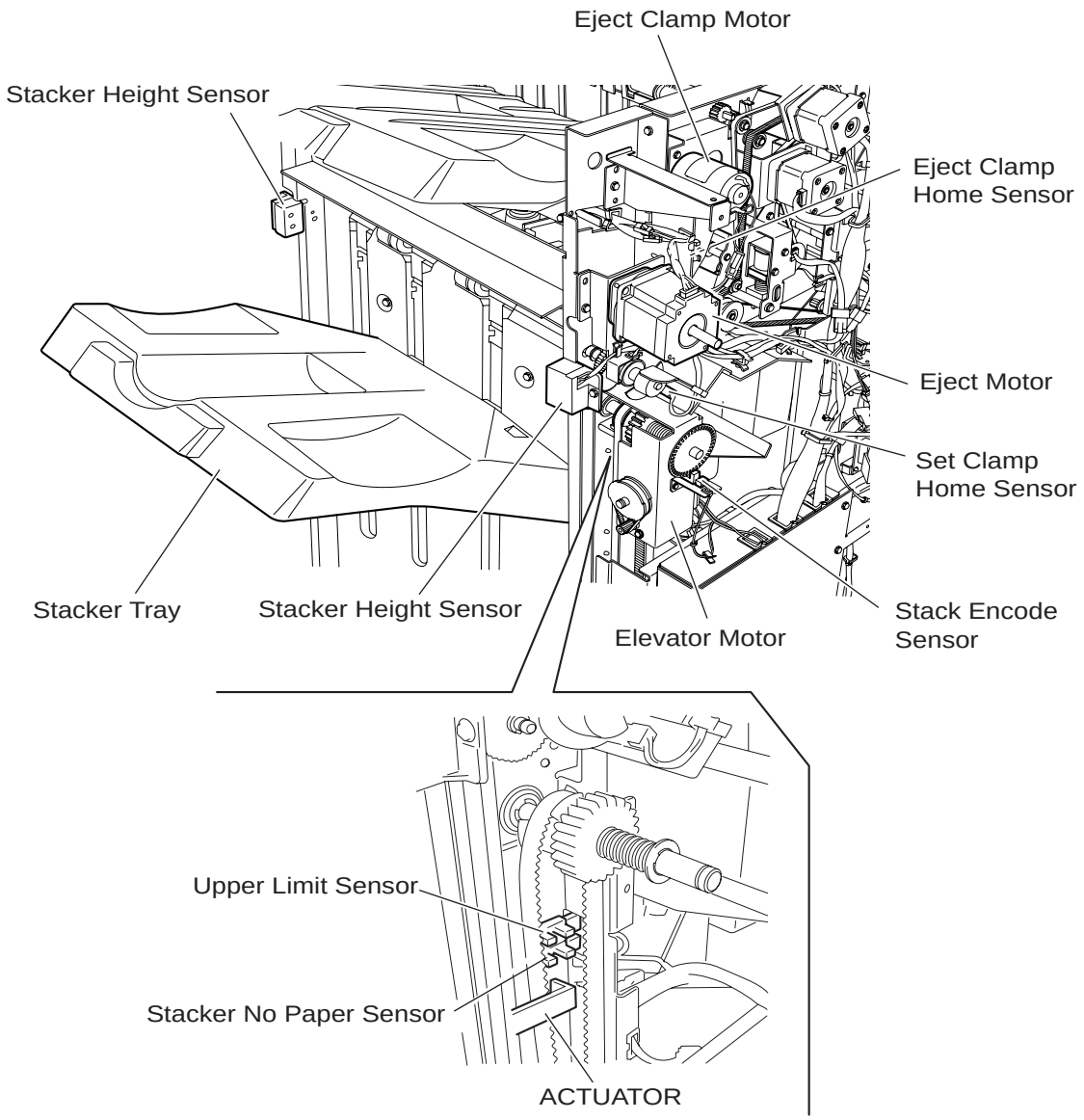


The Stacker No Paper Sensor is turned ON or OFF by the Actuator attached to the Carriage Assy R on the rear side of the Finisher. In case the Stacker Tray abnormally goes up above the Stacker No Paper Sensor, the Upper Limit Sensor is installed above the Stacker No Paper Sensor for the protection against the abnormal operation.

If an operator removes paper from the Stacker Tray during printing, it is detected by the Stacker Height Sensor 2, and the ejection of paper to the Stacker Tray is inhibited. Then the Elevator Motor is activated to move the Stacker Tray to the Stacker Height Sensor 1 sensing area. Thus, the ejection of paper to the Stacker Tray is restored.

If an operator removes paper from the Stacker Tray while printing is stopped, it is detected by the Stacker Height Sensor 2. After three seconds have passed, the Elevator Motor is activated to move the Stacker Tray to the Stacker Height Sensor 1 sensing area. Thus, the ejection of paper to the Stacker Tray is restored.

The Stacker Tray lowers according to the volume of paper it contains. If any obstacle under the tray hinders the tray from lowering, “Stacker Lower safety Warning” is detected and the Stacker Tray is stopped.



Full Stack Detection

"Full stack" is detected when paper in the Stacker Tray becomes full to prevent paper jam or falling of paper to the floor. The Stacker Tray can stack up to approx. 3000 sheets.

The paper volume in the Stacker Tray is detected at every 10% (approx. 300 sheets) and notified to the Controller.

Furthermore, the Stacker Tray can stack up to 200 sets (default) of stapled paper. (This value can be changed by the non-volatile memory between 10 and 200.)

The Stacker Tray can continue to stack paper until paper volume reaches either of the limits above.

In the "mix stacking" mode, all the sizes are allowed until paper volume of approx. 300 sheets in the Stacker Tray is detected.

The "mix stacking" means one of the following cases:

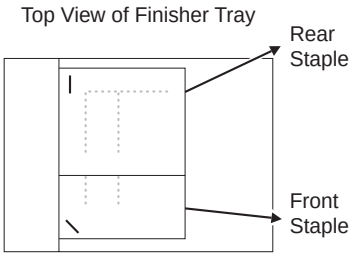
- A larger (any side of paper) sheet of paper is stacked on a smaller sheet

  Example: A4LEF (297x210) paper is stacked on A4SEF (210x297) paper.

Note:

When B5LEF (257x182) paper is stacked on A4LEF (297x210) paper, this is not "mix stacking".

- A sheet of paper of less than 11 inches is stacked in the Stacker Tray with the Staple Mode changed.



- An operator put a sheet (or sheets) when no paper is remaining in the Stacker Tray.
  The size and condition of paper stacked in the tray are not identified.)
- Paper was present in the Stacker Tray when power was turned ON.
  The size and condition of paper stacked in the tray are not identified.)
- The Finisher entered the Sleep Mode with “mix stacking” and then has exited the Sleep Mode.
- The post-processing mode has changed.

Functions of Stacker Tray Sensors/Motors

1. Stacker Height Sensor 1

   A pair of light emitter and photo-receiver to detect the height of paper in the Stacker Tray. This sensor is used to control the Elevator Motor. When blocked by paper or the tray, this sensor turns “H” deciding that the Stacker Tray is above the reference level. To the contrary, when receiving light, this sensor turns “L” deciding that the Stacker Tray is below the reference level. The”H” to “L” turning point of the sensor is defined as the reference level.

2. Stacker Height Sensor 2

   A pair of light emitter and photo-receiver to detect the height of paper in the Stacker Tray (same function as Stacker Height Sensor 1). This sensor is also used to control the Elevator Motor. When blocked by paper or the tray, this sensor turns “H” deciding that the Stacker Tray is above the reference level. To the contrary, when receiving light, this sensor turns “L” deciding that the Stacker Tray is below the reference level.

3. Stacker No Paper Sensor

   A photo-interrupter to detect that the Stacker Tray is at the highest position, and also to detect “no paper”. When the Actuator attached to the Carriage Assy R enters the sensing area, the emitted light is blocked, which turns the sensor to “H” (+5 V).

4. Upper Limit Sensor

   A photo-interrupter to detect the Stacker Tray’s abnormal elevation above the top position (Stacker No Paper Sensor position). When the Actuator attached to the Carriage Assy R enters the sensing area, the emitted light is blocked, which turns the sensor to “H” (+5 V).

5. Stack Encode Sensor

   A photo-interrupter to count pulse of the Encoder attached to the Shaft-Elev. The paper volume in the Stacker Tray is detected based on this count.

6. Elevator Motor

   A DC motor to elevate or lower the Stacker Tray. Clockwise rotation elevates the tray, and counterclockwise rotation lowers the tray.

7. Eject Motor

   A DC motor to eject stapled or non-stapled paper to the Stacker Tray. Clockwise rotation ejects paper to the Stacker Tray, and counterclockwise rotation reverses the Eject Roll to feed the paper from the Puncher to the Compile Tray.

8. Eject Clamp Motor

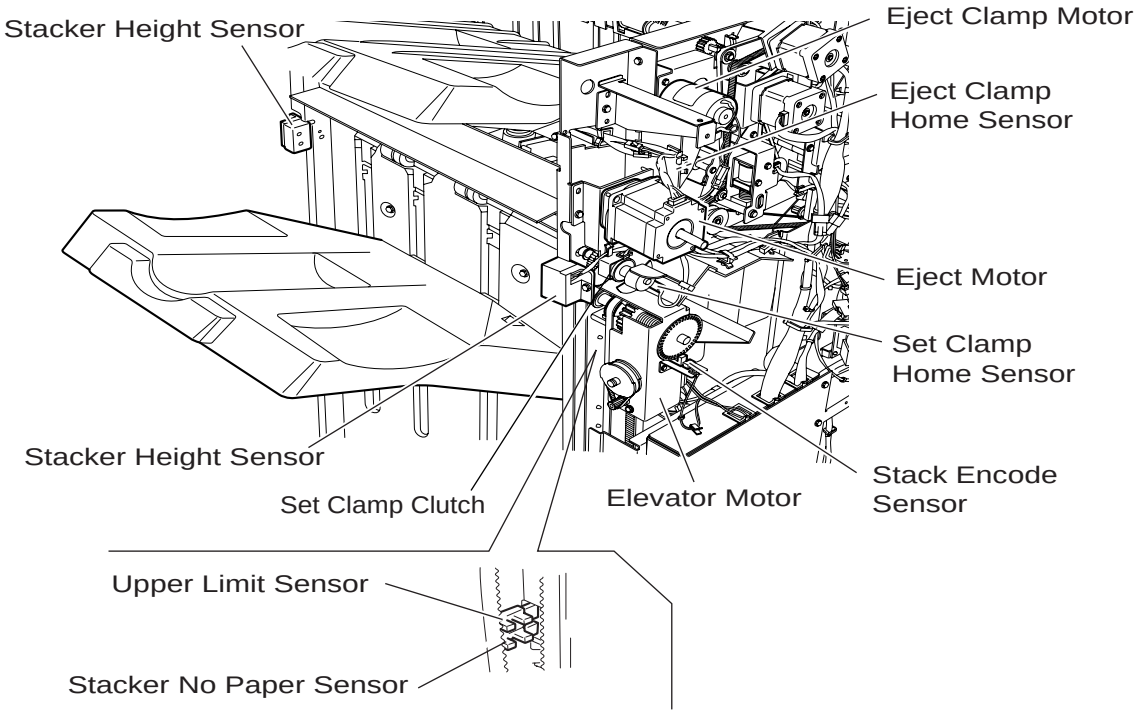
A DC motor to elevate or lower the Eject Clamp when feeding paper from the Puncher to the Compile Tray or from the Compile Tray to the Stacker Tray

9. Set Clamp Home Sensor

   A photo-interrupter to detect the Set Clamp home position. This sensor functions as a trigger to control ON/OFF of the Set Clamp Clutch.

10. Set Clamp Clutch

    When this clutch is activated, it transmits the Eject Motor rotating power to the Shaft Assy-Eject Roll.



Power Supply and Interlock

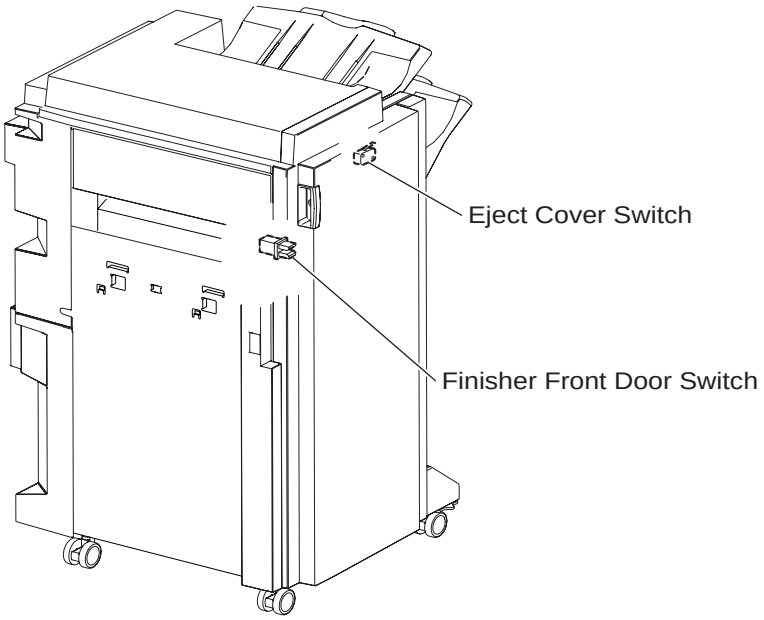
The Finisher is equipped with the following interlock switches.

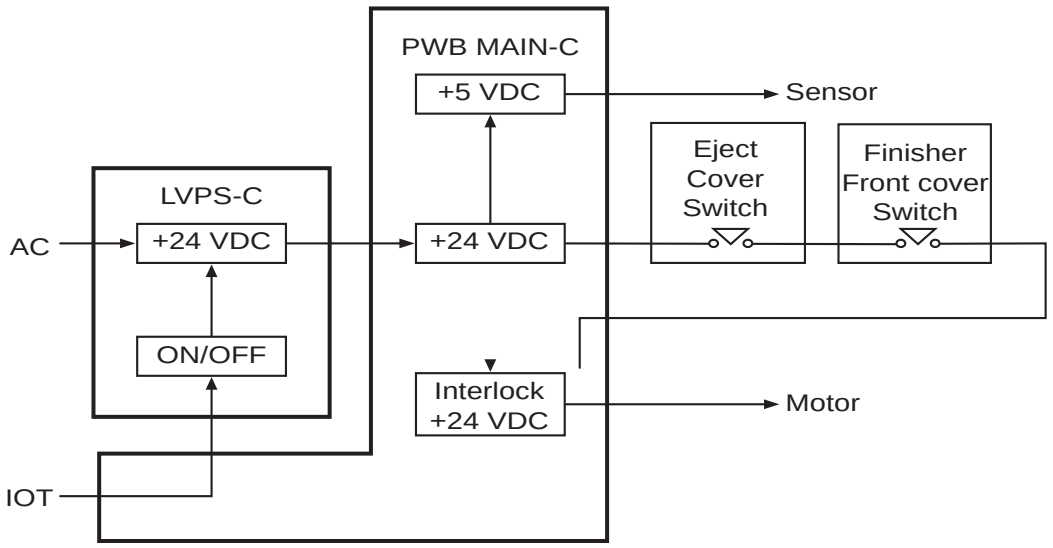
- Finisher Front Door Switch:

  Turns OFF when the Cover Assy Front opens, shutting off the Interlock, +24 VDC line in the Finisher.

- Eject Cover Switch:

  Turns OFF when the COVER EJECT on the right side opens, shutting off the Interlock, +24 VDC line in the Finisher.

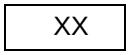
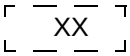
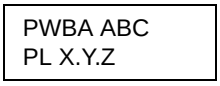

Eject Cover Switch
Finisher Front Door Switch


PWB MAIN-C
+5 VDC
Sensor
Eject
Cover
Switch
Finisher
Front cover
Switch
LVPS-C
AC
+24 VDC
+24 VDC
ON/OFF
Interlock
+24 VDC
Motor
IOT

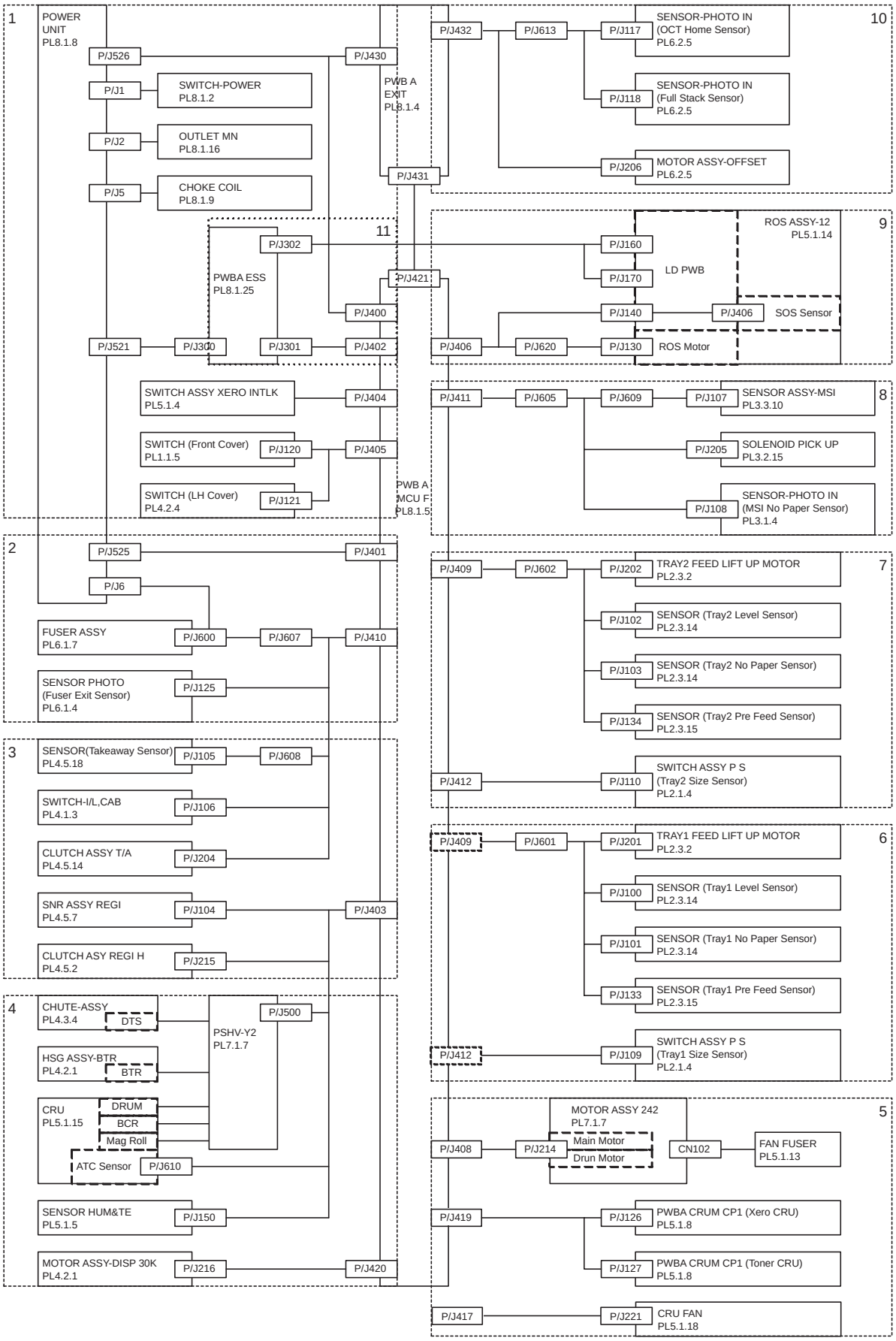
Chapter 3 Wiring

General Wiring Diagram

The following describes the legend of the general wiring diagram shown on the next page.

Symbols	Description
	Denotes a connection between parts with harnesses and wires.
	A frame not having parts name inside denotes the connector (P/J). Numeric value inside implies the connector number.
	A frame of broken line denotes the connector (P/J) written in several places separately. Numeric value inside implies the connector number.
	A frame having parts name inside denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	A frame of dotted line denotes the section in "2. Wiring Diagram between Parts", and numeric value implies the section number.

Engine


1
POWER UNIT PL8.1.8
P/J526
P/J430
P/J1
SWITCH-POWER PL8.1.2
P/J2
OUTLET MN PL8.1.16
P/J5
CHOKE COIL PL8.1.9
PWB A EXIT PL8.1.4
P/J431
11
P/J302
PWBA ESS PL8.1.25
P/J421
P/J400
P/J521
P/J300
P/J301
P/J402
SWITCH ASSY XERO INTLK PL5.1.4
P/J404
SWITCH (Front Cover) PL1.1.5
P/J120
P/J405
SWITCH (LH Cover) PL4.2.4
P/J121
PWB A MCU F PL8.1.5
2
P/J525
P/J401
P/J6
FUSER ASSY PL6.1.7
P/J600
P/J607
P/J410
SENSOR PHOTO (Fuser Exit Sensor) PL6.1.4
P/J125
3
SENSOR(Takeaway Sensor) PL4.5.18
P/J105
P/J608
SWITCH-I/L,CAB PL4.1.3
P/J106
CLUTCH ASSY T/A PL4.5.14
P/J204
SNR ASSY REGI PL4.5.7
P/J104
P/J403
CLUTCH ASY REGI H PL4.5.2
P/J215
4
CHUTE-ASSY PL4.3.4
DTS
P/J500
PSHV-Y2 PL7.1.7
HSG ASSY-BTR PL4.2.1
BTR
CRU PL5.1.15
DRUM
BCR
Mag Roll
ATC Sensor
P/J610
SENSOR HUM&TE PL5.1.5
P/J150
MOTOR ASSY-DISP 30K PL4.2.1
P/J216
P/J420
10
P/J432
P/J613
P/J117
SENSOR-PHOTO IN (OCT Home Sensor) PL6.2.5
P/J118
SENSOR-PHOTO IN (Full Stack Sensor) PL6.2.5
P/J206
MOTOR ASSY-OFFSET PL6.2.5
9
ROS ASSY-12 PL5.1.14
P/J160
LD PWB
P/J170
P/J140
P/J406
SOS Sensor
P/J406
P/J620
P/J130
ROS Motor
8
P/J411
P/J605
P/J609
P/J107
SENSOR ASSY-MSI PL3.3.10
P/J205
SOLENOID PICK UP PL3.2.15
P/J108
SENSOR-PHOTO IN (MSI No Paper Sensor) PL3.1.4
7
P/J409
P/J602
P/J202
TRAY2 FEED LIFT UP MOTOR PL2.3.2
P/J102
SENSOR (Tray2 Level Sensor) PL2.3.14
P/J103
SENSOR (Tray2 No Paper Sensor) PL2.3.14
P/J134
SENSOR (Tray2 Pre Feed Sensor) PL2.3.15
P/J412
P/J110
SWITCH ASSY P S (Tray2 Size Sensor) PL2.1.4
6
P/J409
P/J601
P/J201
TRAY1 FEED LIFT UP MOTOR PL2.3.2
P/J100
SENSOR (Tray1 Level Sensor) PL2.3.14
P/J101
SENSOR (Tray1 No Paper Sensor) PL2.3.14
P/J133
SENSOR (Tray1 Pre Feed Sensor) PL2.3.15
P/J412
P/J109
SWITCH ASSY P S (Tray1 Size Sensor) PL2.1.4
5
MOTOR ASSY 242 PL7.1.7
P/J408
P/J214
Main Motor
Drun Motor
CN102
FAN FUSER PL5.1.13
P/J419
P/J126
PWBA CRUM CP1 (Xero CRU) PL5.1.8
P/J127
PWBA CRUM CP1 (Toner CRU) PL5.1.8
P/J417
P/J221
CRU FAN PL5.1.18

Wiring Diagram between Parts

Configuration

The wiring diagram is separated into 11 sections to show detailed connection between parts.

1 Power supply

- Connection between POWER UNIT and PWBA ESS
- Connection between POWER UNIT and PWB A EXIT
- Connection between POWER UNIT and PWB A MCU F
- Connection between POWER UNIT and CHOKE COIL
- Connection between POWER UNIT and OUTLET MN
- Connection between POWER UNIT and SWITCH-POWER
- Connection between POWER UNIT and BRACKER GFI INL
- Connection between PWB A MCU F and SWITCH (LH Cover)
- Connection between PWB A MCU F and SWITCH (Front Cover)
- Connection between PWB A MCU F and SWITCH ASSY XERO INTLK

2 Fuser

- Connection between PWB A MCU F and POWER UNIT
- Connection between PWB A MCU F and FUSER ASSY
- Connection between PWB A MCU F and SENSOR PHOTO (Fuser Exit Sensor)
- Connection between POWER UNIT and FUSER ASSY

3 Paper feed

- Connection between PWB A MCU F and CLUTCH ASY REGI H
- Connection between PWB A MCU F and SNR ASSY REGI
- Connection between PWB A MCU F and SWITCH-I/L,CAB
- Connection between PWB A MCU F and SENSOR (Takeaway Sensor)
- Connection between PWB A MCU F and CLUTCH ASSY T/A

4 Xero / Deve

- Connection between PWB A MCU F and PSHV-Y2
- Connection between PWB A MCU F and CRU (ATC Sensor)
- Connection between PWB A MCU F and SENSOR HUM&TE
- Connection between PWB A MCU F and MOTOR ASSY-DISP 30K

5 Drive / CRUM

- Connection between PWB A MCU F and MOTOR ASSY 242
- Connection between PWB A MCU F and PWBA CRUM CP1 (Xero CRU)
- Connection between PWB A MCU F and PWBA CRUM CP1 (Toner CRU)
- Connection between PWB A MCU F and CRU FAN
- Connection between MOTOR ASSY 242 and FAN FUSER

6 Tray1

- Connection between PWB A MCU F and TRAY1 FEED LIFT UP MOTOR
- Connection between PWB A MCU F and SENSOR (Tray1 Level Sensor)
- Connection between PWB A MCU F and SENSOR (Tray1 No Paper Sensor)
- Connection between PWB A MCU F and SENSOR (Tray1 Pre Feed Sensor)
- Connection between PWB A MCU F and SWITCH ASSY P S (Tray1 Size Sensor)

Tray2

- Connection between PWB A MCU F and TRAY2 FEED LIFT UP MOTOR
- Connection between PWB A MCU F and SENSOR (Tray2 Level Sensor)
- Connection between PWB A MCU F and SENSOR (Tray2 No Paper Sensor)
- Connection between PWB A MCU F and SENSOR (Tray2 Pre Feed Sensor)
- Connection between PWB A MCU F and SWITCH ASSY P S (Tray2 Size Sensor)

8 MPF

- Connection between PWB A MCU F and SENSOR ASSY-MPF
- Connection between PWB A MCU F and SOLENOID PICK UP
- Connection between PWB A MCU F and SENSOR-PHOTO IN (MPF No Paper Sensor)

9 ROS

- Connection between PWBA ESS and ROS ASSY-12
- Connection between PWB A MCU F and ROS ASSY-12

10 EXIT

- Connection between PWB A EXIT and SENSOR-PHOTO IN (OCT Home Sensor)
- Connection between PWB A EXIT and SENSOR-PHOTO IN (Full Stack Sensor)
- Connection between PWB A EXIT and MOTOR ASSY-OFFSET
- Connection between PWB A EXIT and PWB A MCU F

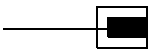
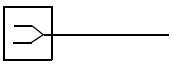
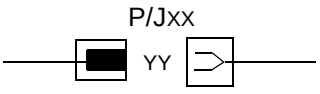
11 Controller

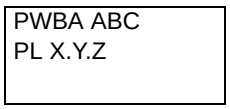
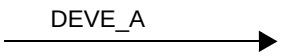
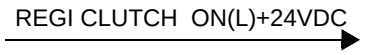
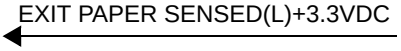
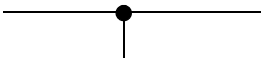
- Connection between PWB A EXIT and PWBA ESS

Notes on Using the Wiring Diagram between Parts

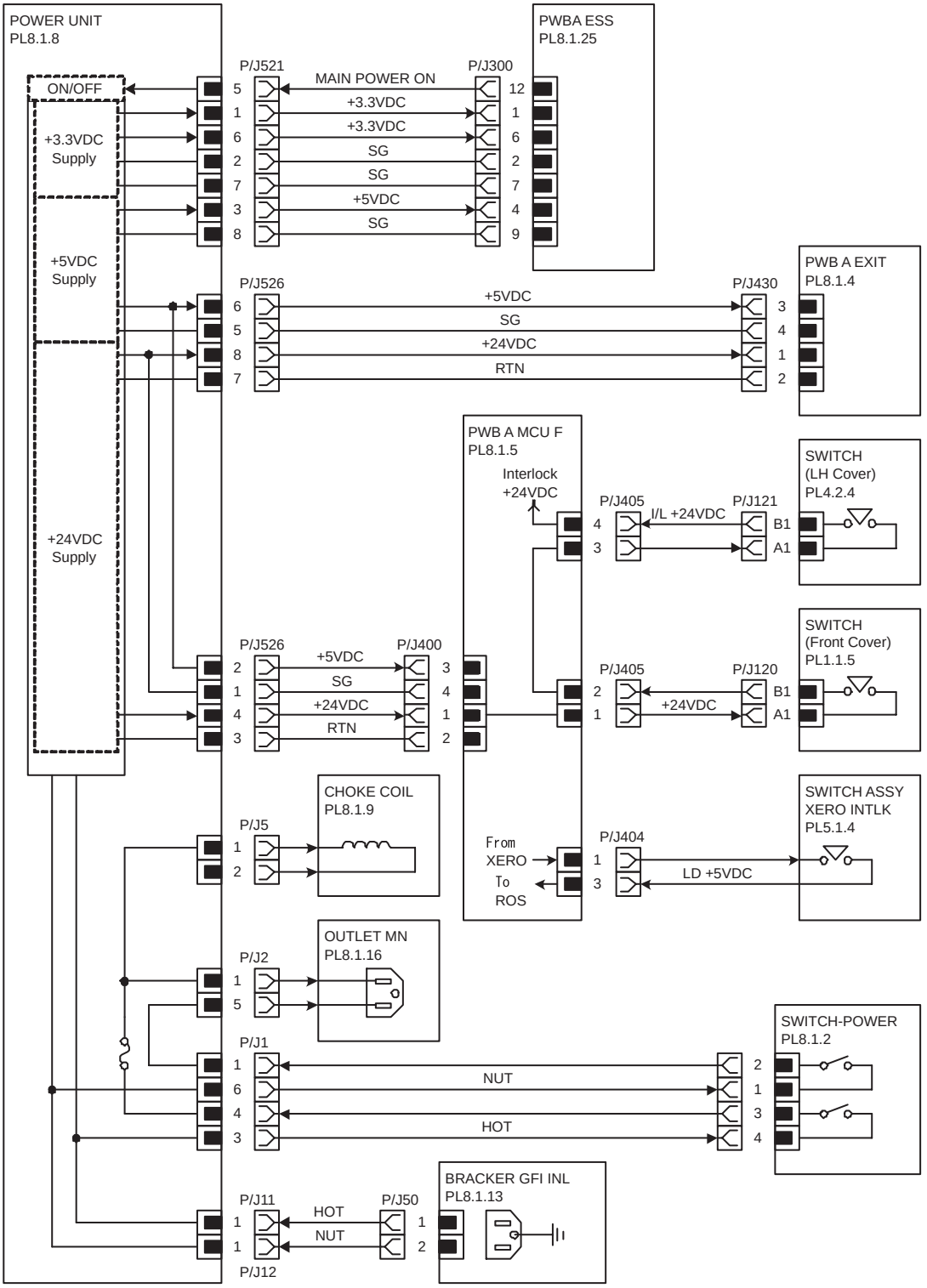
The following describes the legend of the wiring diagrams between parts shown on the following pages.

NOTE The description of general symbols is omitted.

Symbols	Description
	Denotes a plug.
	Denotes a jack.
	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.

Symbols	Description
	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	Denotes functional parts attached with functional parts name.
	Denotes the control and its outline in PWB.
	Denotes a connection between parts with harnesses or wires, attached with signal name/contents.
	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes the function, and logic value of the signal when the function operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes a connection between wires.
I/L +24VDC	Denotes DC voltage when the interlock switch in HNB MCU WITH CPU turns on
+5VDC +3.3VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.
RTN	Denotes the return.

1 Power supply



Signal line name	Description
MAIN POWER ON	ON/OFF control signal of Power Supply in POWER UNIT

- Short protection (over-current protection) & Over-voltage protection of POWER UNIT
  - Each output has the short protection and over-voltage protection functions as shown on the table below:

	Output Status		
	3.3VDC	5VDC	24VDC
Over-current value	9 - 14A	7 - 11A	14 - 19A
3.3V short	Cut off	Cut off	Cut off
5V short	Normal output	Cut off	Cut off
24V short	Normal output	Cut off	Cut off
Over-voltage value	4 - 5V	6 - 8V	26.7 - 32V
3.3V	Cut off	Cut off	Cut off
5V	Cut off	Cut off	Cut off
24V	Normal output	Cut off	Cut off

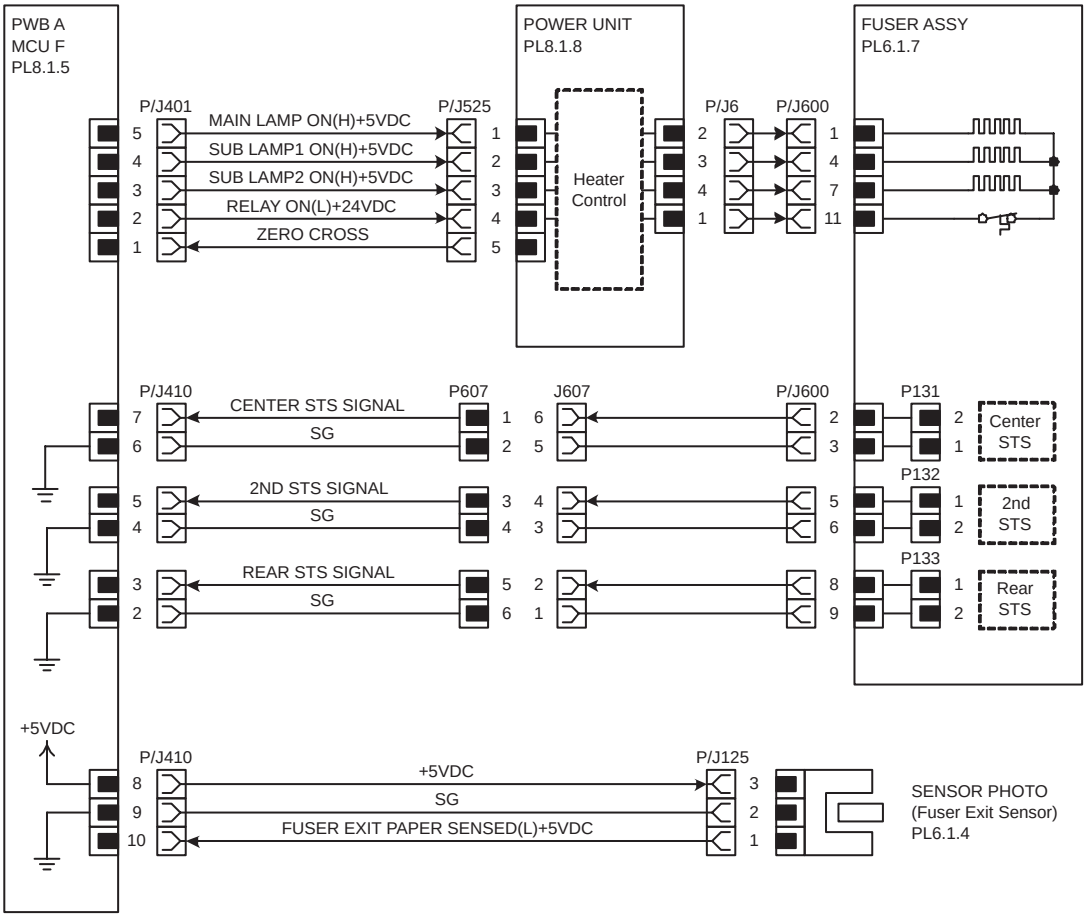
In the case of short protection (over-current protection) cut off:

After the clearance of the shortage, power off, allow 10 sec. and power on; the output is restored.

In the case of over-voltage protection Cut off:

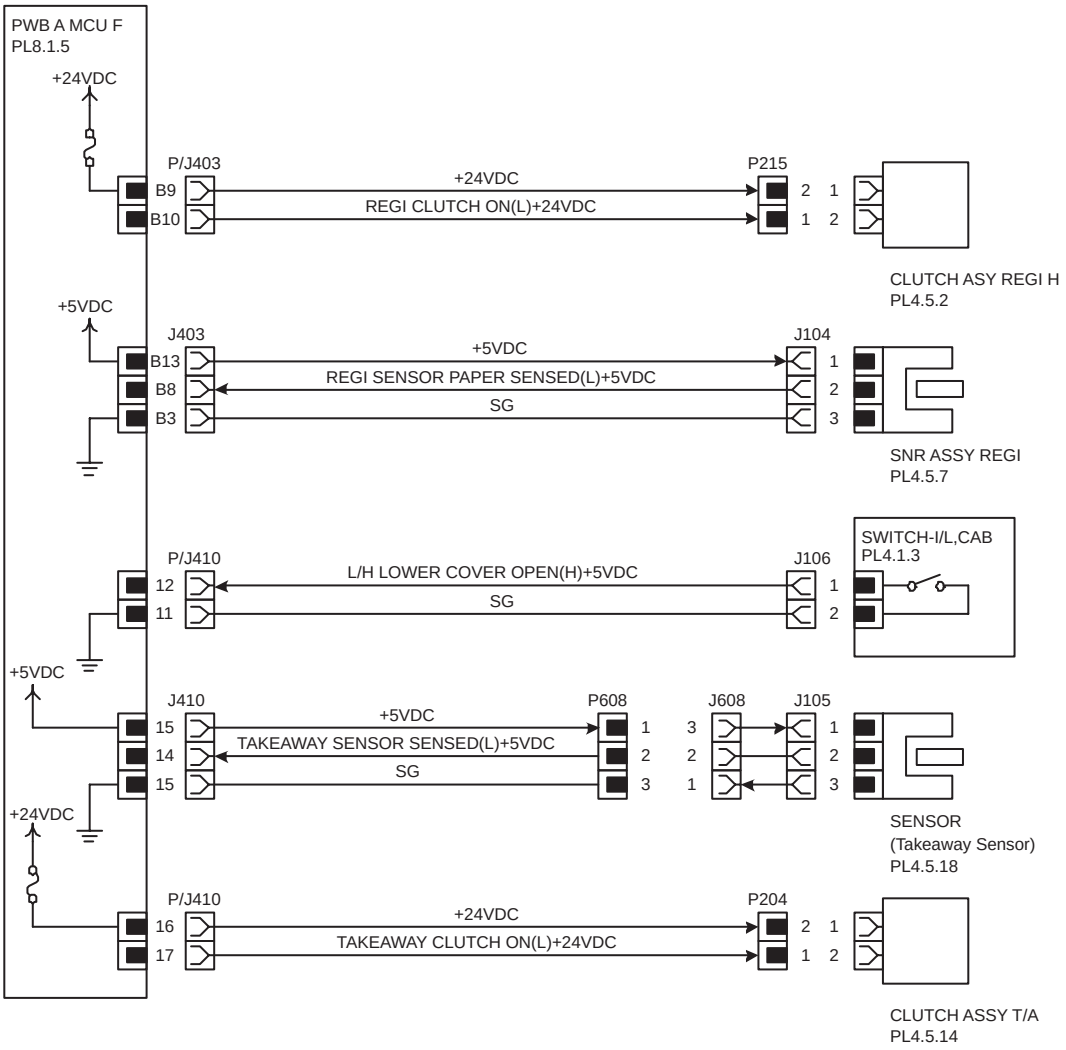
After the overvoltage protection functions, power off, allow 10 sec. and power on; the output is restored.

2 Fuser



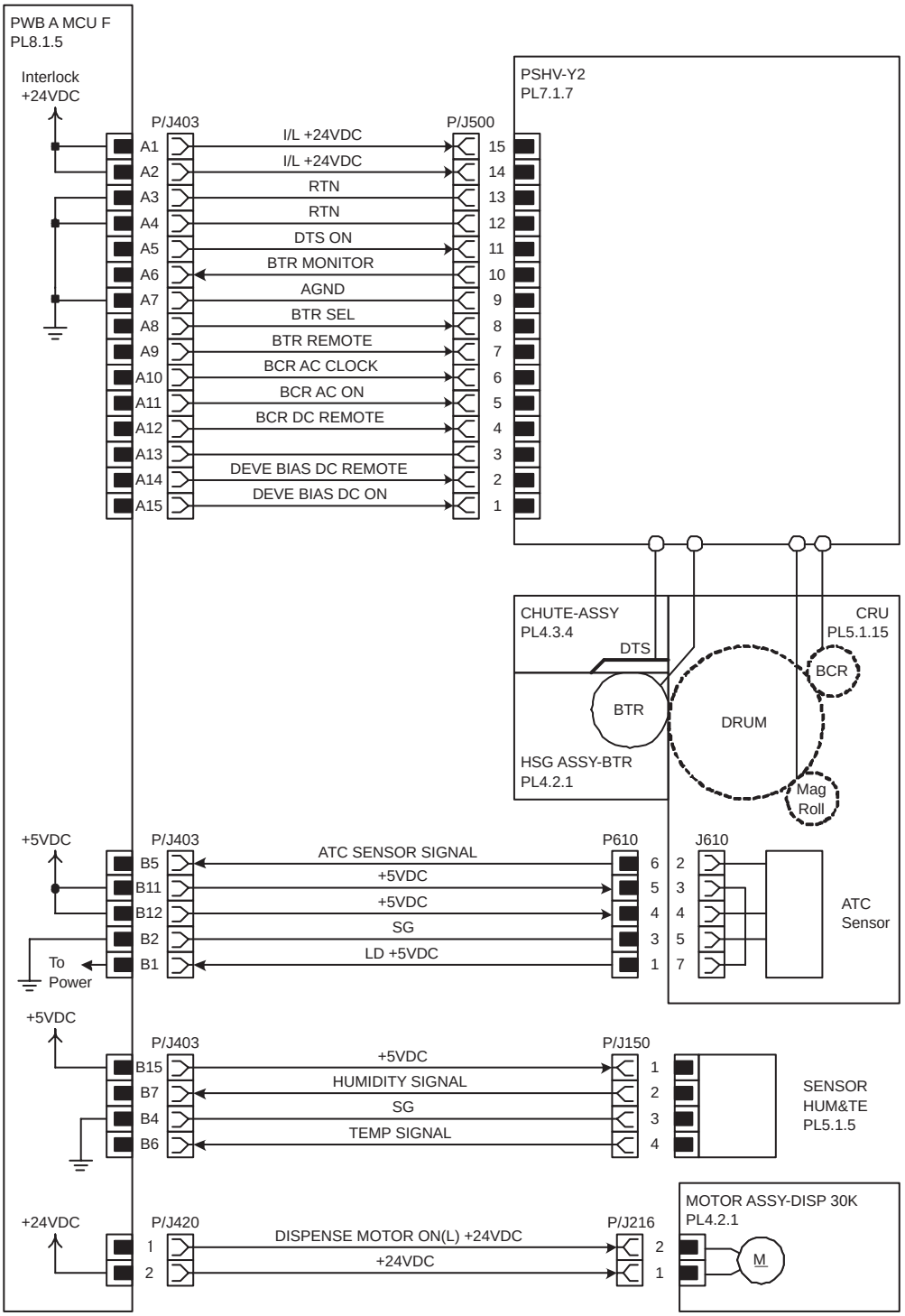
Signal line name	Description
MAIN HEATER ON(H)+5VDC	ON/OFF control signal of Main Heater in FUSER ASSY
SUB HEATER1 ON(H)+5VDC	ON/OFF control signal of Sub Heater1 in FUSER ASSY
SUB HEATER2 ON(H)+5VDC	ON/OFF control signal of Sub Heater2 in FUSER ASSY
RELAY ON(L)+24VDC	ON/OFF control signal of Fuser Relay in FUSER ASSY
ZERO CROSS	ZERO CROSS signal
CENTER STS SIGNAL	Heart Roll surface temperature data (analog value) measured by Center STS in FUSER ASSY
2ND STS SIGNAL	Heart Roll surface temperature data (analog value) measured by 2nd STS in FUSER ASSY
REAR STS SIGNAL	Heart Roll surface temperature data (analog value) measured by Rear STS in FUSER ASSY
FUSER EXIT PAPER SENSED(L)+5VDC	Paper detection signal in fuser by Fuser Exit Sensor in FUSER ASSY

3 Paper Feed



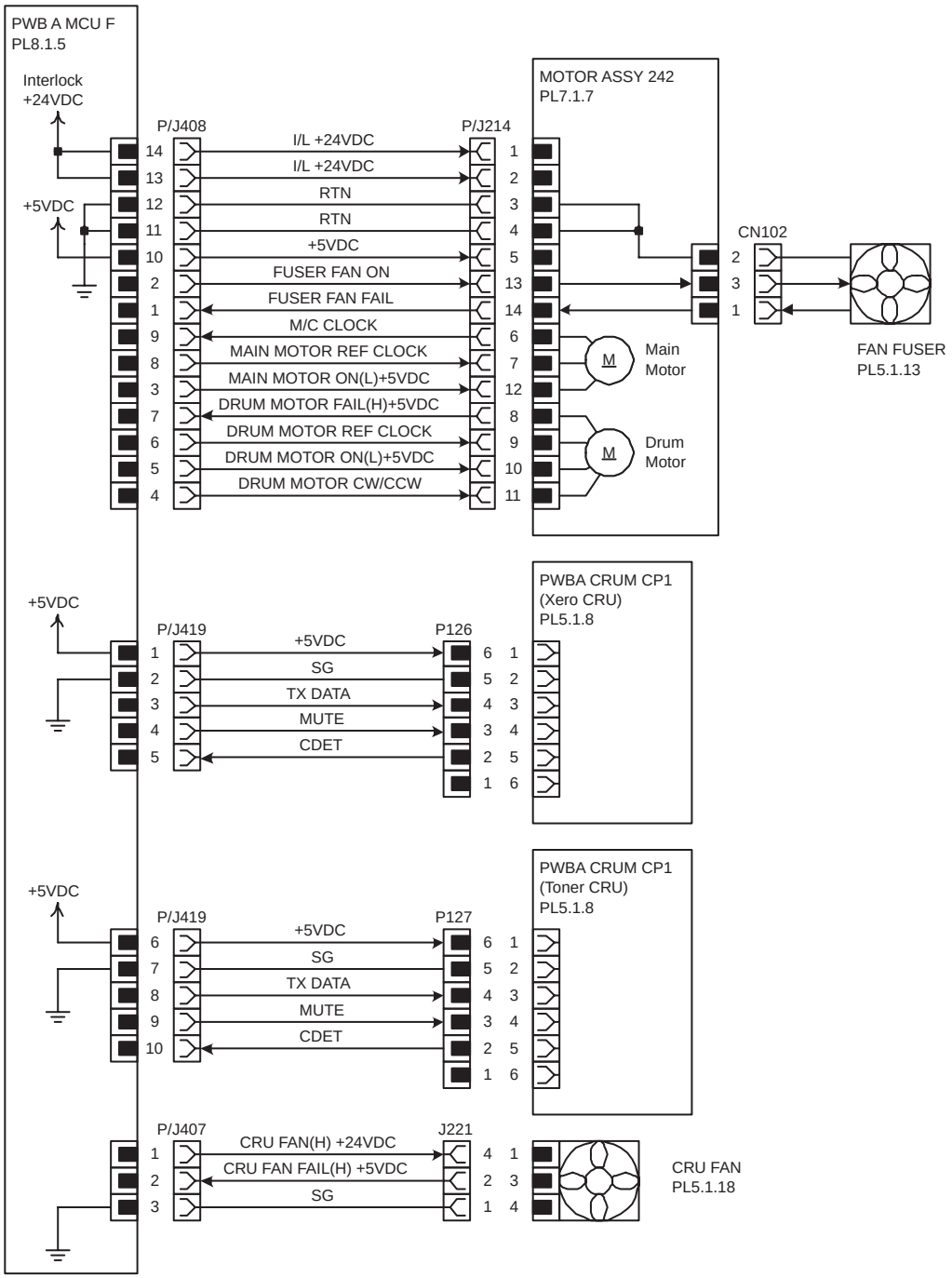
Signal line name	Description
REGI CLUTCH ON(L)+24VDC	CLUTCH ASY REGI H(Regi Clutch) ON/OFF control signal
REGI SENSOR PAPER SENSED(L)+5VDC,	Paper detection signal by SNR ASSY REGI in Registration
L/H LOWER COVER OPEN(H)+5VDC	L/H LOWER COVER open/close detection signal by SWITCH-I/L,CAB
TAKEAWAY SENSOR SENSED(L)+5VDC	Paper detection signal by SNR TAKEAWAY in transport section
TAKEAWAY CLUTCH ON(L)+24VDC	CLUTCH ASSY T/A ON/OFF control signal

4 Xero / Deve


PWB A MCU F
PL8.1.5
Interlock
+24VDC
P/J403
P/J500
PSHV-Y2
PL7.1.7
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
I/L +24VDC
I/L +24VDC
RTN
RTN
DTS ON
BTR MONITOR
AGND
BTR SEL
BTR REMOTE
BCR AC CLOCK
BCR AC ON
BCR DC REMOTE
DEVE BIAS DC REMOTE
DEVE BIAS DC ON
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
CHUTE-ASSY
PL4.3.4
DTS
BTR
HSG ASSY-BTR
PL4.2.1
CRU
PL5.1.15
BCR
DRUM
Mag
Roll
+5VDC
P/J403
P610
J610
B5
B11
B12
B2
B1
ATC SENSOR SIGNAL
+5VDC
+5VDC
SG
LD +5VDC
6
5
4
3
1
2
3
4
5
7
ATC
Sensor
To
Power
+5VDC
P/J403
P/J150
B15
B7
B4
B6
+5VDC
HUMIDITY SIGNAL
SG
TEMP SIGNAL
1
2
3
4
SENSOR
HUM&TE
PL5.1.5
+24VDC
P/J420
P/J216
1
2
DISPENSE MOTOR ON(L) +24VDC
+24VDC
2
1
MOTOR ASSY-DISP 30K
PL4.2.1
M

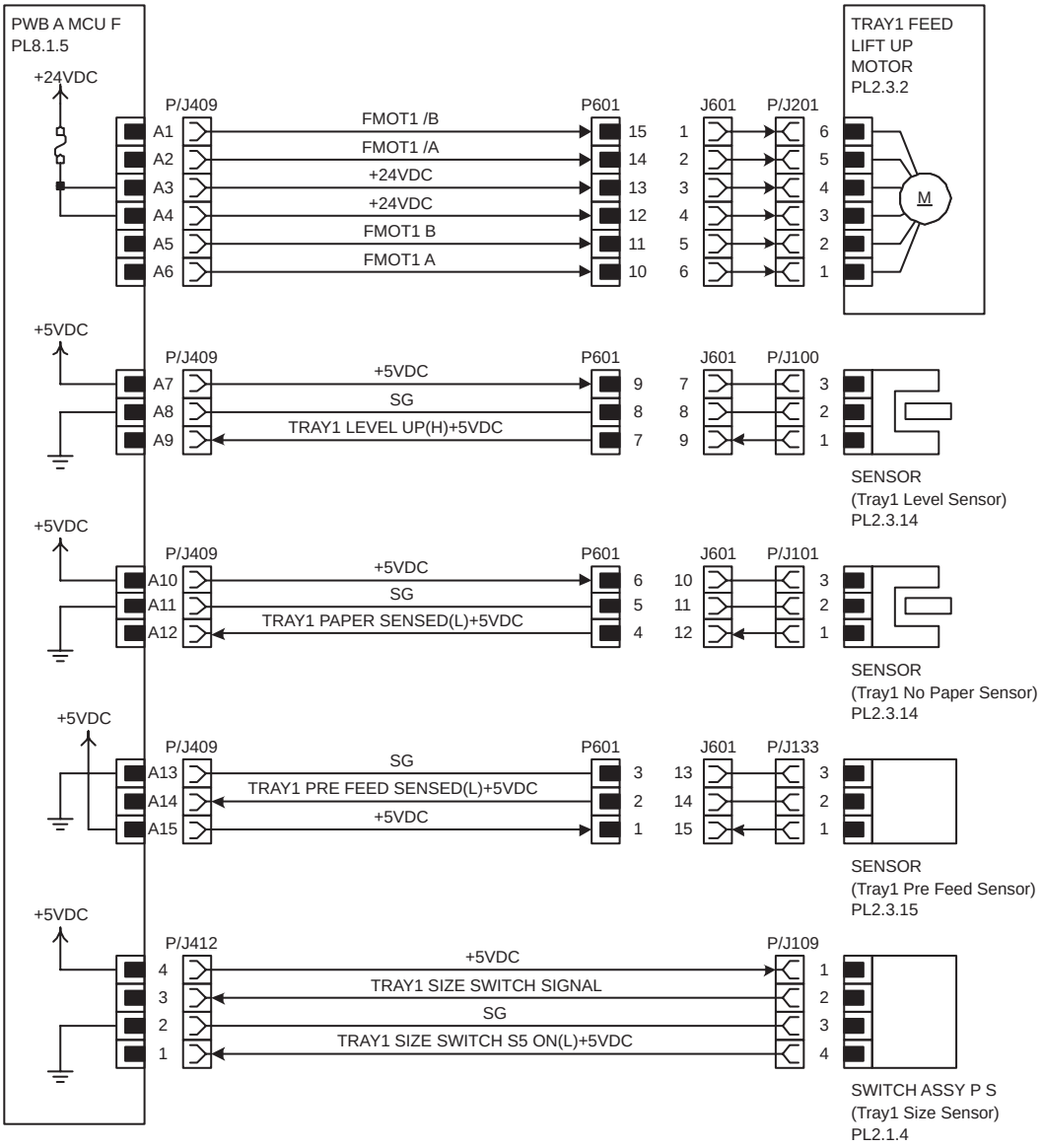
Signal line name	Description
DTS ON	ON/OFF control signal of DTS output
BTR MONITOR	Voltage monitor signal of BTR output (analog value)
BTR SEL	Polarity switching signal of BTR output
BTR REMOTE	Current control signal of BTR DC output (analog value)
BCR AC CLOCK	Clock signal od BCR AC output
BCR AC ON	ON/OFF control signal of BCR AC output
BCR DC REMOTE	ON/OFF control signal of BCR DC output (analog value)
DEVE BIAS DC REMOTE	DEVE BIAS DC voltage output signal
DEVE BIAS DC ON	ON/OFF control signal of DEVE BIAS DC output
ATC SENSOR SIGNAL	Toner concentration in the developing unit detection signal (analog value) measured by ATC Sensor in CRU
HUMIDITY SIGNAL	Humidity detection signal (analog value) measured by SENSOR HUM&TE in the machine
TEMP SIGNAL	Temperature detection signal (analog value) measured by SENSOR HUM&TE in the machine
DISPENSE MOTOR ON(L) +24VDC	MOTOR ASSY-DISP 30K ON/OFF control signal

5 Drive / CRUM


PWB A MCU F
PL8.1.5
Interlock
+24VDC
+5VDC
P/J408
P/J214
I/L +24VDC
I/L +24VDC
RTN
RTN
+5VDC
FUSER FAN ON
FUSER FAN FAIL
M/C CLOCK
MAIN MOTOR REF CLOCK
MAIN MOTOR ON(L)+5VDC
DRUM MOTOR FAIL(H)+5VDC
DRUM MOTOR REF CLOCK
DRUM MOTOR ON(L)+5VDC
DRUM MOTOR CW/CCW
MOTOR ASSY 242
PL7.1.7
CN102
M
Main
Motor
M
Drum
Motor
FAN FUSER
PL5.1.13
+5VDC
P/J419
P126
+5VDC
SG
TX DATA
MUTE
CDET
PWBA CRUM CP1
(Xero CRU)
PL5.1.8
+5VDC
P/J419
P127
+5VDC
SG
TX DATA
MUTE
CDET
PWBA CRUM CP1
(Toner CRU)
PL5.1.8
P/J407
J221
CRU FAN(H) +24VDC
CRU FAN FAIL(H) +5VDC
SG
CRU FAN
PL5.1.18

Signal line name	Description
FUSER FAN ON	High Speed / Low Speed switching signal of FAN FUSER
FUSER FAN FAIL(H)+5VDC	Fail detection signal of FAN FUSER
M/C CLOCK	Clock signal from Main Motor in MOTOR ASSY 242
MAIN MOTOR REF CLOCK	Reference Clock signal to Main Motor in MOTOR ASSY 242
MAIN MOTOR ON(L)+5VDC	ON/OFF control signal of Main Motor in MOTOR ASSY 242
DRUM MOTOR FAIL(H)+5VDC	Fail detection signal of Drum Motor in MOTOR ASSY 242
DRUM MOTOR REF CLOCK	Reference clock signal to Drum Motor in MOTOR ASSY 242
DRUM MOTOR ON(L)+5VDC	ON/OFF control signal of Drum Motor in MOTOR ASSY 242
DRUM MOTOR CW/CCW	Rotation direction switching signal of Drum Motor in MOTOR ASSY 242
TX DATA, MUTE, CDET	Read/Write control signal of PWBA CRUM CP1
CRU FAN ON(H)+24VDC	ON/OFF control signal of CRU FAN
CRU FAN FAIL(H)+5VDC	Fail detection signal of CRU FAN

6 Tray1

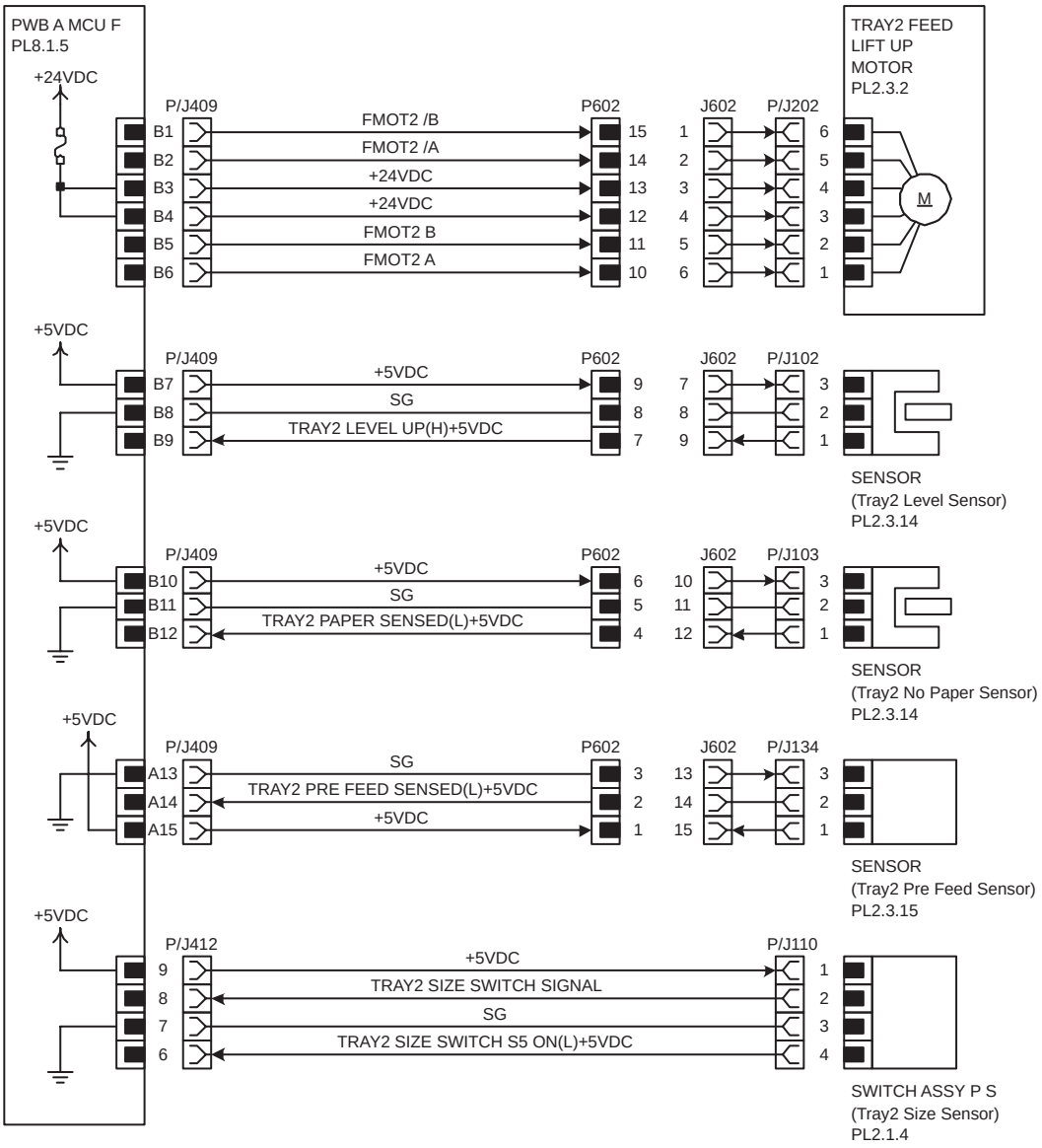


Signal line name	Description
FMOT1 A, FMOT1 B, FMOT1 /A, FMOT1 /B	TRAY1 FEED LIFT UP MOTOR exciting signal
TRAY1 LEVEL UP(H)+5VDC	Rise (paper feed possible level) detection signal of plate in Tray1 by SENSOR (Tray1 Level Sensor)
TRAY1 PAPER SENSED(L)+5VDC	Paper detection signal in Tray1 of SENSOR (Tray1 No Paper Sensor)
TRAY1 PRE FEED SENSED(L)+5VDC	Feed paper detection signal from Tray1 by SENSOR (Tray1 Pre Feed Sensor)
TRAY1 SIZE SWITCH SIGNAL	Paper size detection signal (analog value) of SWITCH ASSY P S (Tray1 Size Sensor)
TRAY1 SIZE SWITCH S5 ON(L)+5VDC	S5 in SWITCH ASSY P S (Tray1 Size Sensor) ON/ OFF detection signal

- Paper size detection
  - The ON/OFF pattern of each switch (S1-S5) of SWITCH ASSY P S and the relation of paper size and the output voltage of TRAY1 SIZE SWITCH SIGNAL are as follows.

Paper Size	S1	S2	S3	S4	S5	Output Voltage(V)
No Tray	OFF	OFF	OFF	OFF	OFF	4.66Å}0.05
5.5 "Å~8.5" SEF/A5 SEF	OFF	OFF	ON	OFF	OFF	4.01Å}0.05
B5 SEF	OFF	OFF	ON	ON	ON	3.69Å}0.05
8.5 "Å~13" SEF	OFF	ON	OFF	ON	OFF	3.07Å}0.05
8.5"Å~14"SEF	OFF	ON	OFF	ON	ON	
A4 SEF	OFF	ON	ON	OFF	OFF	2.75Å}0.05
8.5"Å~11"SEF	OFF	ON	ON	OFF	ON	
A4 LEF	ON	OFF	ON	OFF	OFF	1.52Å}0.05
A3 SEF	ON	OFF	ON	ON	OFF	1.21Å}0.05
B5 LEF/ Executive LEF	ON	ON	OFF	OFF	ON	0.91Å}0.05
8K SEF (TFX/GCO)	ON	ON	OFF	ON	OFF	0.60Å}0.05
B4 SEF	ON	ON	OFF	ON	ON	
8.5"Å~11"LEF	ON	ON	ON	OFF	OFF	0.30Å}0.05
16K LEF(TFX/GCO)	ON	ON	ON	OFF	ON	
11"Å~17"LEF	ON	ON	ON	ON	ON	0.00Å}0.05

7 Tray2

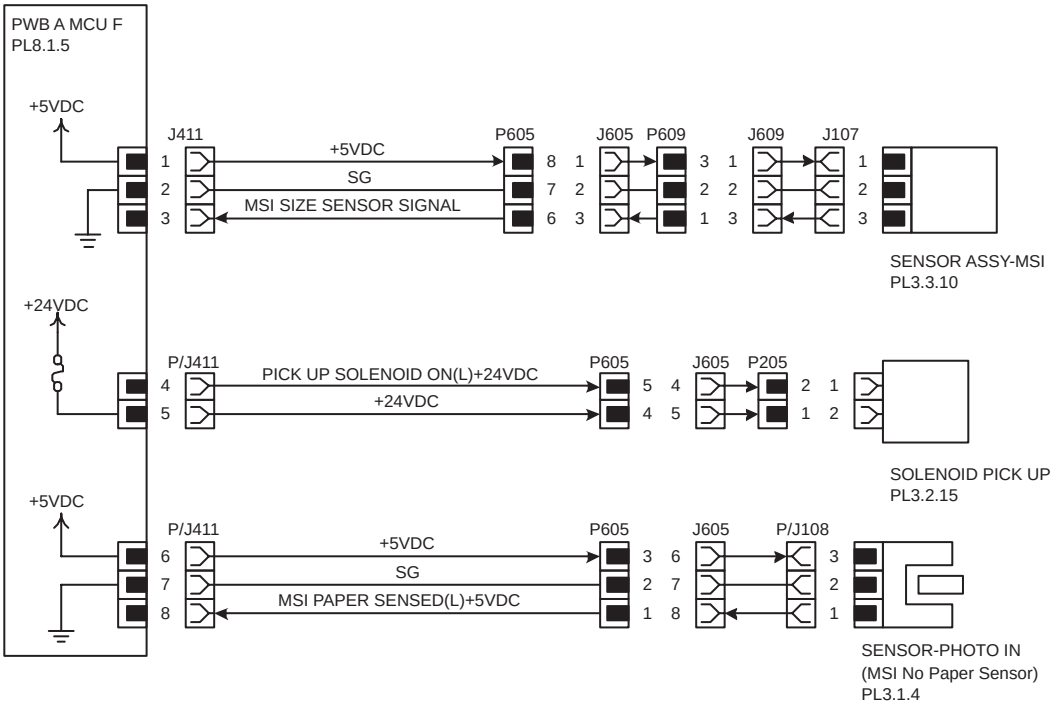

PWB A MCU F
PL8.1.5
+24VDC
P/J409
B1
B2
B3
B4
B5
B6
FMOT2 /B
FMOT2 /A
+24VDC
+24VDC
FMOT2 B
FMOT2 A
P602
15
14
13
12
11
10
J602
P/J202
1
2
3
4
5
6
TRAY2 FEED
LIFT UP
MOTOR
PL2.3.2
M
+5VDC
P/J409
B7
B8
B9
+5VDC
SG
TRAY2 LEVEL UP(H)+5VDC
P602
9
8
7
J602
P/J102
7
8
9
3
2
1
SENSOR
(Tray2 Level Sensor)
PL2.3.14
+5VDC
P/J409
B10
B11
B12
+5VDC
SG
TRAY2 PAPER SENSED(L)+5VDC
P602
6
5
4
J602
P/J103
10
11
12
3
2
1
SENSOR
(Tray2 No Paper Sensor)
PL2.3.14
+5VDC
P/J409
A13
A14
A15
SG
TRAY2 PRE FEED SENSED(L)+5VDC
+5VDC
P602
3
2
1
J602
P/J134
13
14
15
3
2
1
SENSOR
(Tray2 Pre Feed Sensor)
PL2.3.15
+5VDC
P/J412
9
8
7
6
+5VDC
TRAY2 SIZE SWITCH SIGNAL
SG
TRAY2 SIZE SWITCH S5 ON(L)+5VDC
P/J110
1
2
3
4
SWITCH ASSY P S
(Tray2 Size Sensor)
PL2.1.4

Signal line name	Description
FMOT2 A, FMOT2 B, FMOT2 /A, FMOT2 /B	TRAY2 FEED LIFT UP MOTOR exciting signal
TRAY2 LEVEL UP(H)+5VDC	Rise (paper feed possible level) detection signal of plate in Tray2 by SENSOR (Tray2 Level Sensor).
TRAY2 PAPER SENSED(L)+5VDC	Paper detection signal in Tray2 of SENSOR (Tray2 No Paper Sensor)
TRAY2 PRE FEED SENSED(L)+5VDC	Feed paper detection signal from Tray2 by SENSOR (Tray2 Pre Feed Sensor)
TRAY2 SIZE SWITCH SIGNAL	Paper size detection signal (analog value) of SWITCH ASSY P S (Tray2 Size Sensor)
TRAY2 SIZE SWITCH S5 ON(L)+5VDC	S5 in SWITCH ASSY P S (Tray2 Size Sensor) ON/ OFF detection signal

- Paper size detection
  - The ON/OFF pattern of each switch (S1-S5) of SWITCH ASSY P S and the relation of paper size and the output voltage of TRAY2 SIZE SWITCH SIGNAL are as follows.

Paper Size	S1	S2	S3	S4	S5	Output Voltage(V)
No Tray	OFF	OFF	OFF	OFF	OFF	4.66Å}0.05
5.5"Å~8.5"SEF/A5 SEF	OFF	OFF	ON	OFF	OFF	4.01Å}0.05
B5 SEF	OFF	OFF	ON	ON	ON	3.69Å}0.05
8.5"Å~13"SEF	OFF	ON	OFF	ON	OFF	3.07Å}0.05
8.5"Å~14"SEF	OFF	ON	OFF	ON	ON	
A4 SEF	OFF	ON	ON	OFF	OFF	2.75Å}0.05
8.5"Å~11"SEF	OFF	ON	ON	OFF	ON	
A4 LEF	ON	OFF	ON	OFF	OFF	1.52Å}0.05
A3 SEF	ON	OFF	ON	ON	OFF	1.21Å}0.05
B5 LEF/ Executive LEF	ON	ON	OFF	OFF	ON	0.91Å}0.05
8K SEF (TFX/GCO)	ON	ON	OFF	ON	OFF	0.60Å}0.05
B4 SEF	ON	ON	OFF	ON	ON	
8.5"Å~11"LEF	ON	ON	ON	OFF	OFF	0.30Å}0.05
16K LEF(TFX/GCO)	ON	ON	ON	OFF	ON	
11"Å~17"LEF	ON	ON	ON	ON	ON	0.00Å}0.05

8 MPF


PWB A MCU F
PL8.1.5
+5VDC
J411
1
2
3
+5VDC
SG
MSI SIZE SENSOR SIGNAL
P605
8 1
7 2
6 3
J605
P609
3 1
2 2
1 3
J609
J107
1
2
3
SENSOR ASSY-MSI
PL3.3.10
+24VDC
P/J411
4
5
PICK UP SOLENOID ON(L)+24VDC
+24VDC
P605
5 4
4 5
J605
P205
2 1
1 2
SOLENOID PICK UP
PL3.2.15
+5VDC
P/J411
6
7
8
+5VDC
SG
MSI PAPER SENSED(L)+5VDC
P605
3 6
2 7
1 8
J605
P/J108
3
2
1
SENSOR-PHOTO IN
(MSI No Paper Sensor)
PL3.1.4

Signal line name	Description
MPF SIZE SENSOR SIGNAL	MPF Paper size detection signal (analog value) in the main scan direction of SENSOR ASSY-MPF
PICK UP SOLENOID ON(L)+24VDC	SOLENOID PICK UP ON/OFF control signal
MPF PAPER SENSED(L)+5VDC	Paper detection signal in MPF by SENSOR-PHOTO IN (MPF No Paper Sensor)

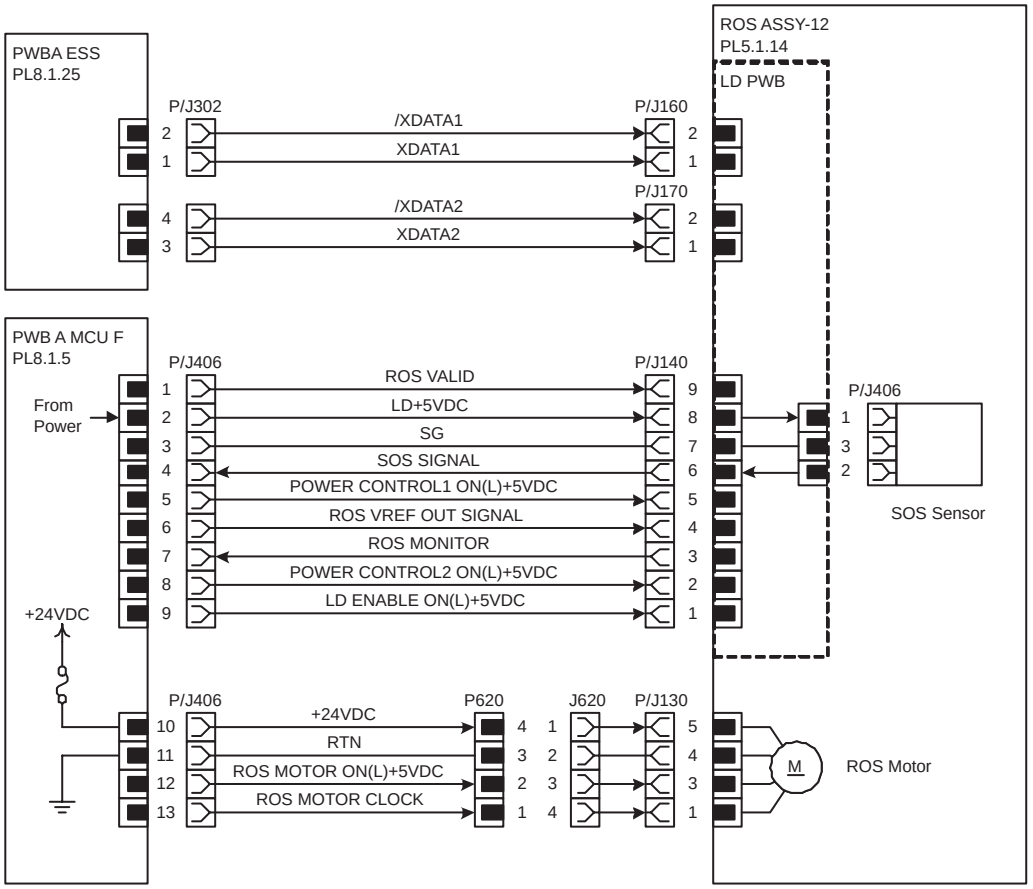
◆ MPF Paper size detection in the main scan direction

The paper guide of MPF is interlocked with, variable resistance of SENSOR ASSY-MPF changes, and the output voltage of MPF SIZE SENSOR SIGNAL changes.

The relation between the output voltage of MPF SIZE SENSOR SIGNAL and paper size is shown below.

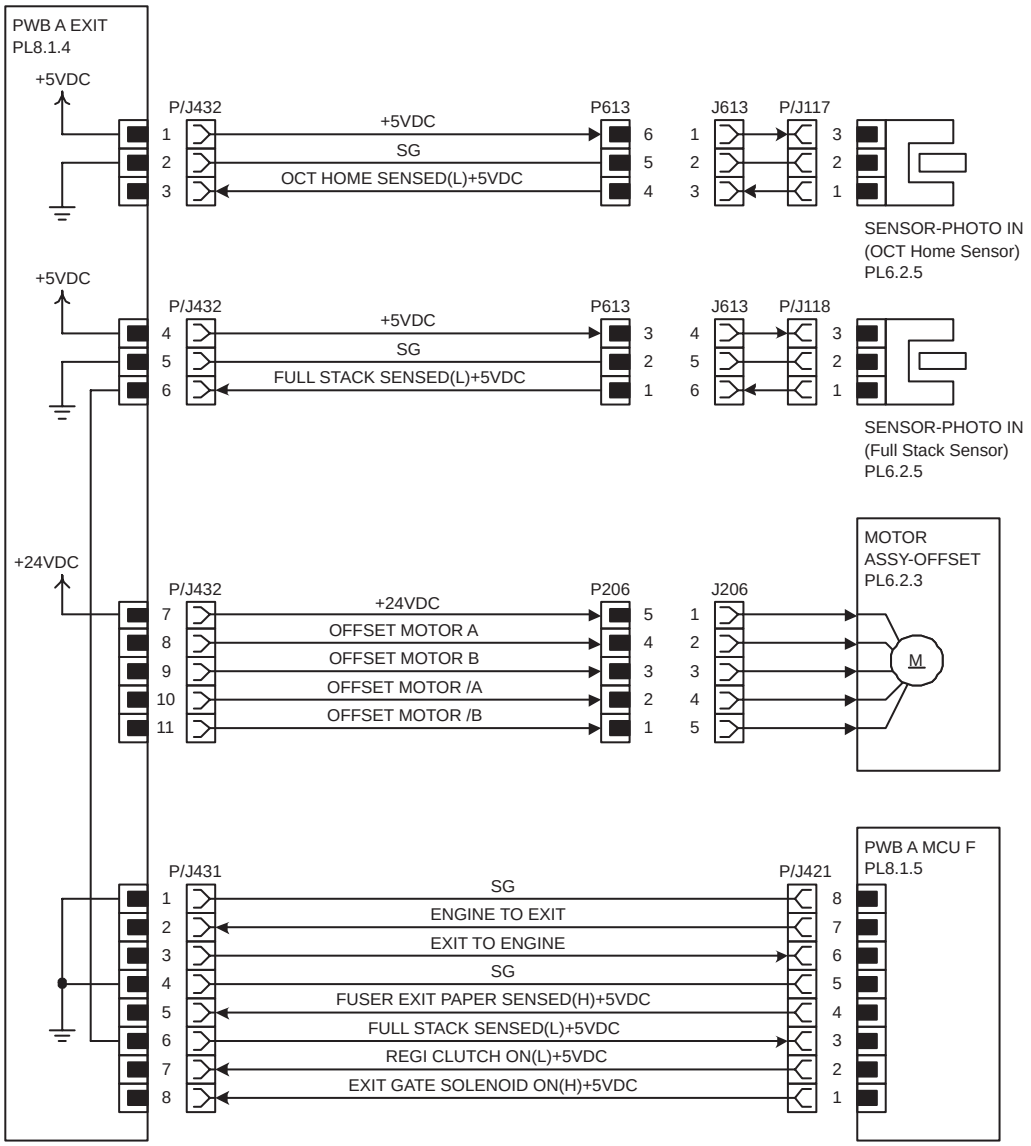
Paper size	Feed length (mm)	Output Voltage(V)
Guide stopper (MIN)	84	4.72
Paper detection range (MIN)	88.2	4.72
3.5"Å~8.5"SEF	88.9	4.71
Post Card SEF	101.6	4.48
5.5"Å~8.5"SEF	139.7	3.79
Japanese Post card LEF	148	3.64
A6 LEF	148	3.64
A5 SEF	148	3.64
Post Card LEF	152.4	3.56
B6LEF	182	3.03
B5SEF	182	3.03
Monarch LEF	190.5	2.87
A5 LEF	210	2.52
A4 SEF	210	2.52
5.5"Å~8.5"LEF	215.9	2.41
5.5"Å~11"SEF(Letter)	215.9	2.41
5.5"Å~13"SEF(Legal)	215.9	2.41
5.5"Å~14"SEF(Legal)	215.9	2.41
DL LEF	220	2.34
C5 LEF	229	2.18
C4 SEF	229	2.18
Vertical (Long size) No.3 LEF	235	2.07
Com10LEF	241.3	1.95
B5 LEF	257	1.67
B4 SEF	257	1.67
Executive LEF	266.7	1.50
16K LEF (TFX)	267(270)	1.49(1.44)
8K SEF (TFX)	267(270)	1.49(1.44)
8.5"Å~11"SEF (Letter)	279.4	1.27
11Å~17"LEF	279.4	1.27
A4 LEF	297	0.95
A3 SEF	297	0.95
Guide stopper (MAX)	303	0.84

9 ROS



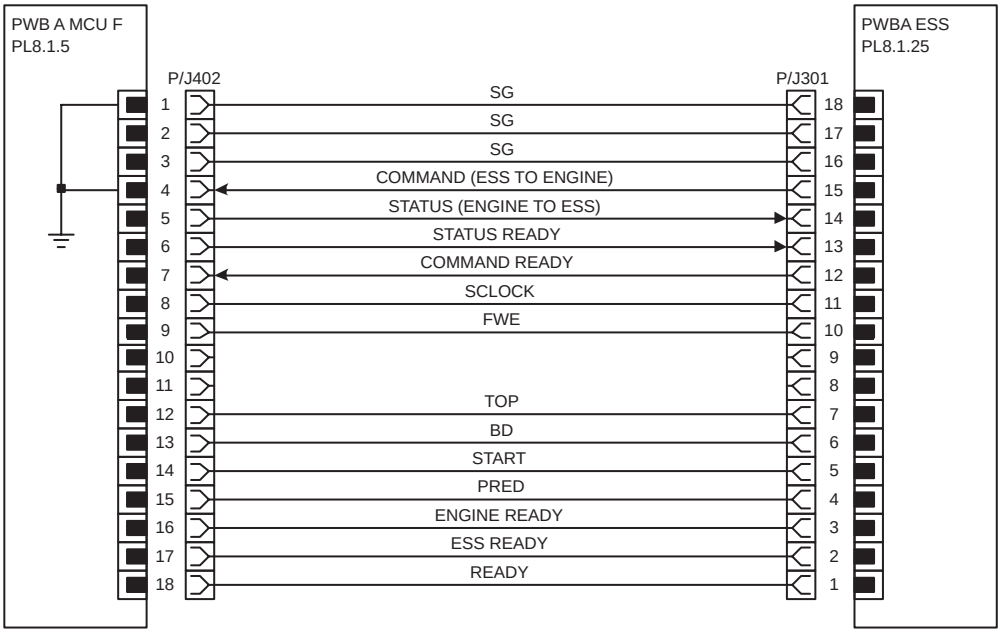
Signal line name	Description
/XDATA1, XDATA1, /XDATA2, XDATA2	Pixel data signals to make LD (Laser Diodes) in ROS ASSY-12 emit the light
ROS VALID	Compulsive putting-out-lights signal of LD in ROS ASSY-12
LD+5VDC	Power supply voltage for LD in ROS ASSY-12
SOS SIGNAL	Scanning start reference signal based on the input of laser beam to the SOS Sensor in ROS ASSY-12
POWER CONTROL1 ON(L)+5VDC	ON/OFF control signal of LD Power in ROS ASSY-12
ROS VREF OUT SIGNAL	Voltages for adjusting light quantity of LD in ROS ASSY-12
ROS MONITOR	Light quantity monitor signal for LD in ROS ASSY-12
POWER CONTROL2 ON(L)+5VDC	ON/OFF control signal of LD Power in ROS ASSY-12
LD ENABLE ON(L)+5VDC	Enable signal of LD in ROS ASSY-12
ROS MOTOR ON(L)+5VDC	ON/OFF control signal of ROS Motor in ROS ASSY-12
ROS MOTOR CLOCK	Clock signal of ROS Motor in ROS ASSY-12

10 Exit



Signal line name	Description
OCT HOME SENSED(L)+5VDC	OCT home position detection signal by SENSOR-PHOTO IN (OCT Home Sensor)
FULL STACK SENSED(L)+5VDC	Stacker tray paper full detection signal by SENSOR-PHOTO IN (Full Stack Sensor)
OFFSET MOTOR A, OFFSET MOTOR B, OFFSET MOTOR /A, OFFSET MOTOR /B	MOTOR ASSY-OFFSET exciting signal
ENGINE TO EXIT	Communication signal of PWB A MCU F (Engine) and PWB A EXIT (Exit) (Engine->Exit)
EXIT TO ENGINE	Communication signal of PWB A EXIT (Exit) and PWB A MCU F (Engine) (Exit->Engine)
FUSER EXIT PAPER SENSED(H)+5VDC	Paper detection signal in fuser by Fuser Exit Sensor in FUSER ASSY (Engine->Exit)
REGI CLUTCH ON(L)+5VDC	CLUTCH ASY REGI H(Regi Clutch) ON/OFF control signal (Engine->Exit)
EXIT GATE SOLENOID ON(H)+5VDC	SOLENOID ASSY (Exit Gate Solenoid) ON/OFF control signal (Engine->Exit)

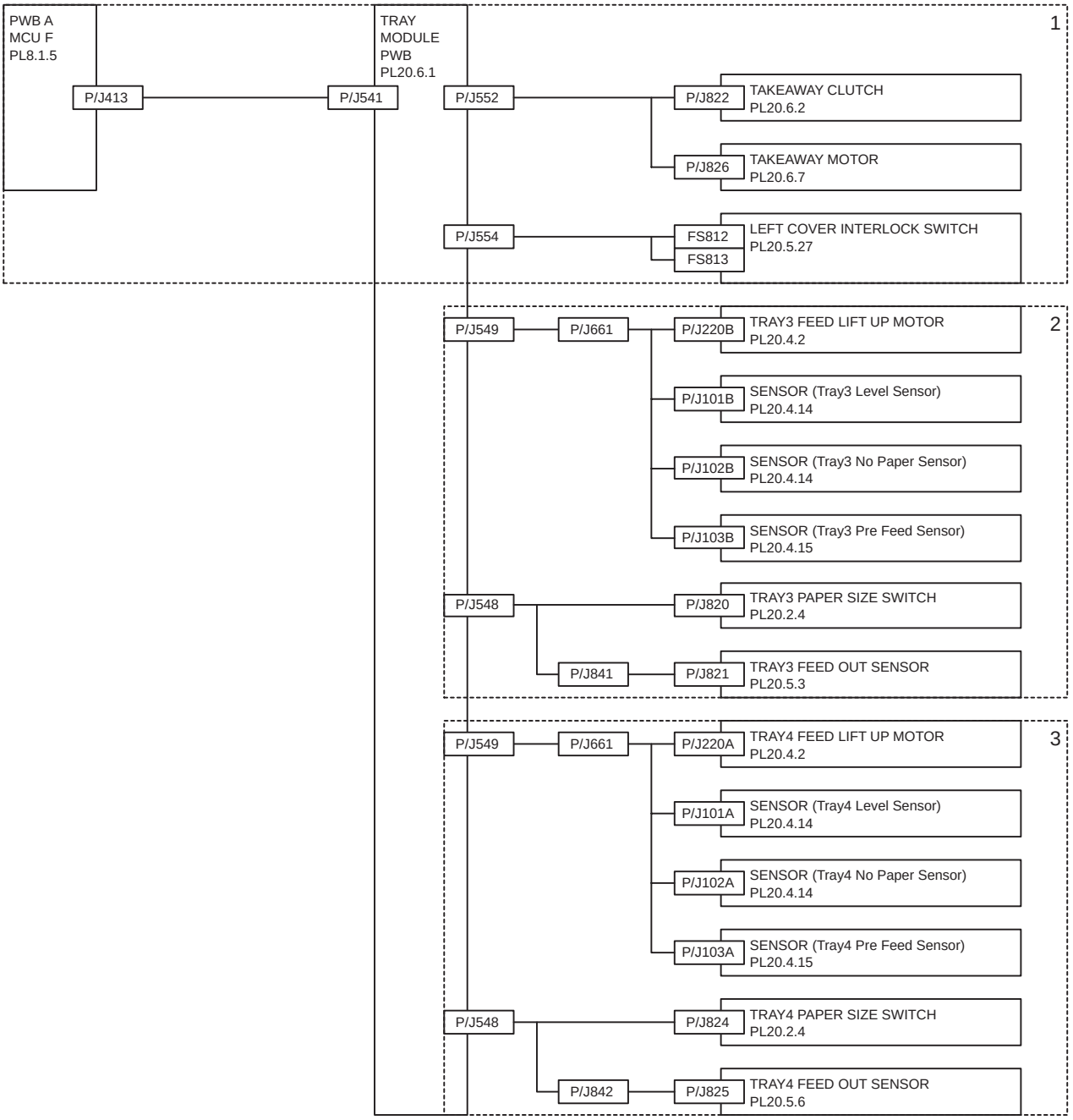
11 Controller



Signal line name	Description
COMMAND (ESS TO ENGINE)	Communication signal of PWBA ESS (ESS) and PWB A MCU F (Engine)
STATUS (ENGINE TO ESS)	
STATUS READY	
COMMAND READY	
SCLOCK	
FWE	
TOP	
BD	
START	
PRED	
ENGINE READY	
ESS READY	
READY	

1000 Sheet Feeder

General Wiring Diagram



Wiring Diagram between Parts

Configuration

The wiring diagram is separated into 3 sections to show detailed connection between parts.

1 Drive

- Connection between TRAY MODULE PWB and CLUTCH (Takeaway Clutch)
- Connection between TRAY MODULE PWB and MAIN MOTOR
- Connection between TRAY MODULE PWB and LEFT COVER INTERLOCK SWITCH

- Connection between TRAY MODULE PWB and PWB A MCU F

2 Tray3

- Connection between TRAY MODULE PWB and TRAY3 FEED LIFT UP MOTOR
- Connection between TRAY MODULE PWB and SENSOR (Tray3 Level Sensor)
- Connection between TRAY MODULE PWB and SENSOR (Tray3 No Paper Sensor)
- Connection between TRAY MODULE PWB and SENSOR (Tray3 Pre Feed Sensor)
- Connection between TRAY MODULE PWB and TRAY3 PAPER SIZE SWITCH
- Connection between TRAY MODULE PWB and TRAY3 FEED OUT SENSOR

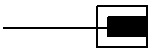
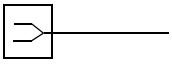
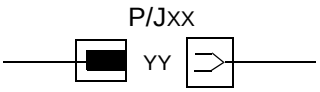
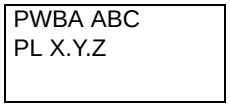
3 Tray4

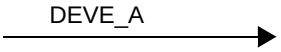
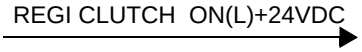
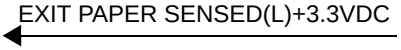
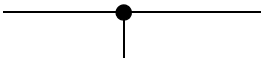
- Connection between TRAY MODULE PWB and TRAY4 FEED LIFT UP MOTOR
- Connection between TRAY MODULE PWB and SENSOR (Tray4 Level Sensor)
- Connection between TRAY MODULE PWB and SENSOR (Tray4 No Paper Sensor)
- Connection between TRAY MODULE PWB and SENSOR (Tray4 Pre Feed Sensor)
- Connection between TRAY MODULE PWB and TRAY4 PAPER SIZE SWITCH
- Connection between TRAY MODULE PWB and TRAY4 FEED OUT SENSOR

Notes on Using the Wiring Diagram between Parts

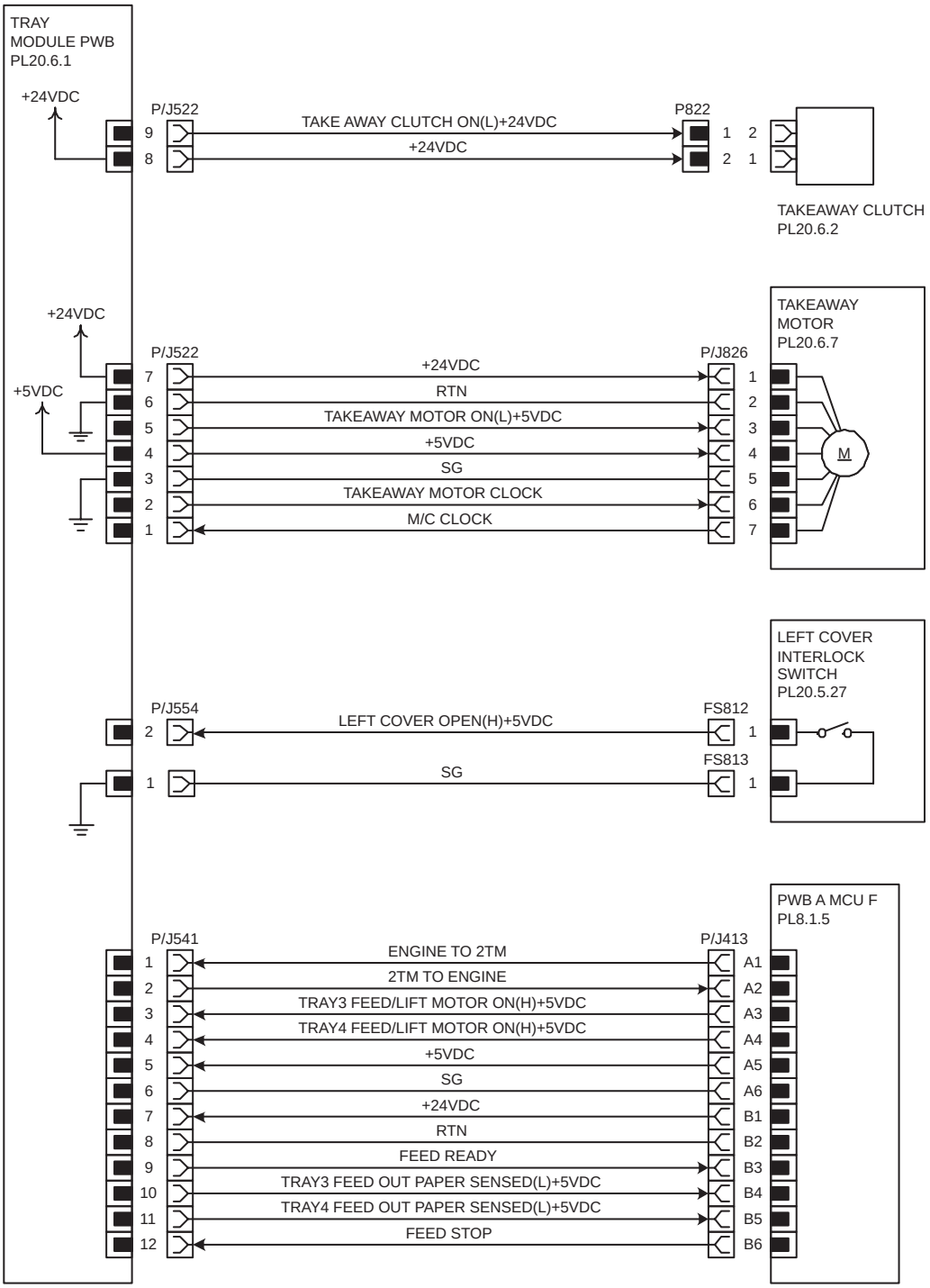
The following describes the legend of the wiring diagrams between parts shown on the following pages.

Note that the description of general symbols is omitted.

Symbols	Description
	Denotes a plug.
	Denotes a jack.
	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.
	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	Denotes functional parts attached with functional parts name.

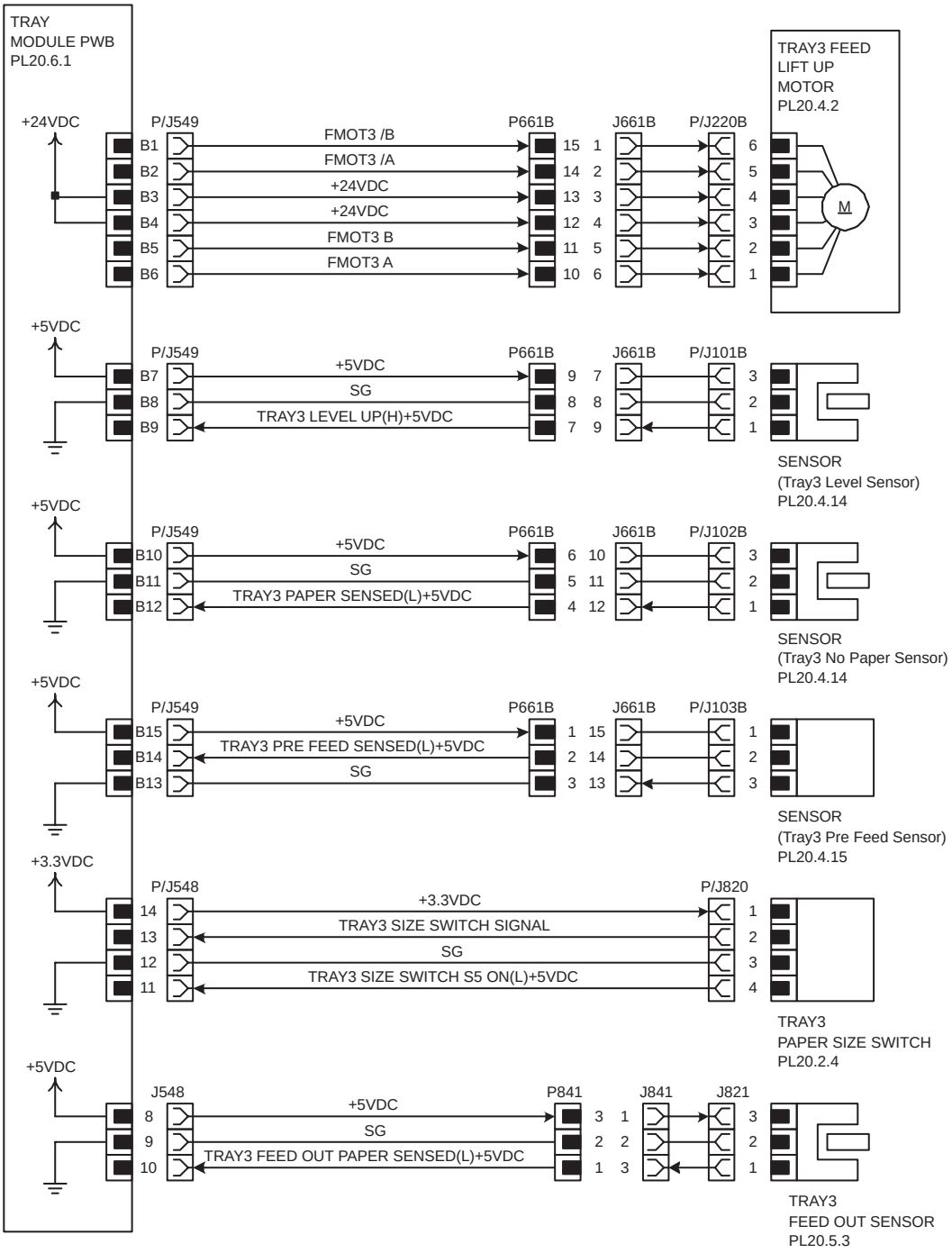
Symbols	Description
	Denotes the control and its outline in PWB.
	Denotes a connection between parts with harnesses or wires, attached with signal name/contents.
	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes the function, and logic value of the signal when the function operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes a connection between wires.
I/L +24VDC	Denotes DC voltage when the interlock switch in HNB MCU WITH CPU turns on
+5VDC +3.3VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.
RTN	Denotes the return.

1 Drive


TRAY
MODULE PWB
PL20.6.1
+24VDC
P/J522
9
8
TAKE AWAY CLUTCH ON(L)+24VDC
+24VDC
P822
1 2
2 1
TAKEAWAY CLUTCH
PL20.6.2
+24VDC
+5VDC
P/J522
7
6
5
4
3
2
1
+24VDC
RTN
TAKEAWAY MOTOR ON(L)+5VDC
+5VDC
SG
TAKEAWAY MOTOR CLOCK
M/C CLOCK
P/J826
1
2
3
4
5
6
7
TAKEAWAY
MOTOR
PL20.6.7
M
LEFT COVER
INTERLOCK
SWITCH
PL20.5.27
P/J554
2
1
LEFT COVER OPEN(H)+5VDC
SG
FS812
1
FS813
1
PWB A MCU F
PL8.1.5
P/J541
1
2
3
4
5
6
7
8
9
10
11
12
ENGINE TO 2TM
2TM TO ENGINE
TRAY3 FEED/LIFT MOTOR ON(H)+5VDC
TRAY4 FEED/LIFT MOTOR ON(H)+5VDC
+5VDC
SG
+24VDC
RTN
FEED READY
TRAY3 FEED OUT PAPER SENSED(L)+5VDC
TRAY4 FEED OUT PAPER SENSED(L)+5VDC
FEED STOP
P/J413
A1
A2
A3
A4
A5
A6
B1
B2
B3
B4
B5
B6

Signal line name	Description
TAKEAWAY CLUTCH ON(L)+24VDC	TAKEAWAY CLUTCH ON/OFF control signal
TAKEAWAY MOTOR ON(L)+5VDC	TAKEAWAY MOTOR ON/OFF control signal
TAKEAWAY MOTOR CLOCK	Clock signal to TAKEAWAY MOTOR
M/C CLOCK	Clock signal from TAKEAWAY MOTOR
LEFT COVER OPEN(H)+5VDC	LEFT COVER open/close detection signal by LEFT COVER INTERLOCK SWITCH
ENGINE TO 2TM	Communication signal of PWB A MCU F (Engine) and TRAY MODULE PWB (2TM) (Engine->2TM)
2TM TO ENGINE	Communication signal of TRAY MODULE PWB (2TM) and PWB A MCU F (Engine) (2TM->Engine)
TRAY3 FEED/LIFT MOTOR ON(H)+5VDC	TRAY3 FEED LIFT UP MOTOR ON/OFF control signal (Engine->2TM)
TRAY4 FEED/LIFT MOTOR ON(H)+5VDC	TRAY4 FEED LIFT UP MOTOR ON/OFF control signal (Engine->2TM)
FEED READY	Feed ready signal from 2TM (2TM->Engine)
TRAY3 FEED OUT PAPER SENSED(L)+5VDC	Paper detection signal by TRAY3 FEED OUT SENSOR in transport section (2TM->Engine)
TRAY4 FEED OUT PAPER SENSED(L)+5VDC	Paper detection signal by TRAY4 FEED OUT SENSOR in transport section (2TM->Engine)
FEED STOP	Feed stop signal to 2TM (Engine->2TM)

2 Tray3


TRAY
MODULE PWB
PL20.6.1
TRAY3 FEED
LIFT UP
MOTOR
PL20.4.2
+24VDC
P/J549
P661B
J661B
P/J220B
B1
B2
B3
B4
B5
B6
FMOT3 /B
FMOT3 /A
+24VDC
+24VDC
FMOT3 B
FMOT3 A
M
+5VDC
P/J549
P661B
J661B
P/J101B
B7
B8
B9
+5VDC
SG
TRAY3 LEVEL UP(H)+5VDC
SENSOR
(Tray3 Level Sensor)
PL20.4.14
+5VDC
P/J549
P661B
J661B
P/J102B
B10
B11
B12
+5VDC
SG
TRAY3 PAPER SENSED(L)+5VDC
SENSOR
(Tray3 No Paper Sensor)
PL20.4.14
+5VDC
P/J549
P661B
J661B
P/J103B
B15
B14
B13
+5VDC
TRAY3 PRE FEED SENSED(L)+5VDC
SG
SENSOR
(Tray3 Pre Feed Sensor)
PL20.4.15
+3.3VDC
P/J548
P/J820
14
13
12
11
+3.3VDC
TRAY3 SIZE SWITCH SIGNAL
SG
TRAY3 SIZE SWITCH S5 ON(L)+5VDC
TRAY3
PAPER SIZE SWITCH
PL20.2.4
+5VDC
J548
P841
J841
J821
8
9
10
+5VDC
SG
TRAY3 FEED OUT PAPER SENSED(L)+5VDC
TRAY3
FEED OUT SENSOR
PL20.5.3

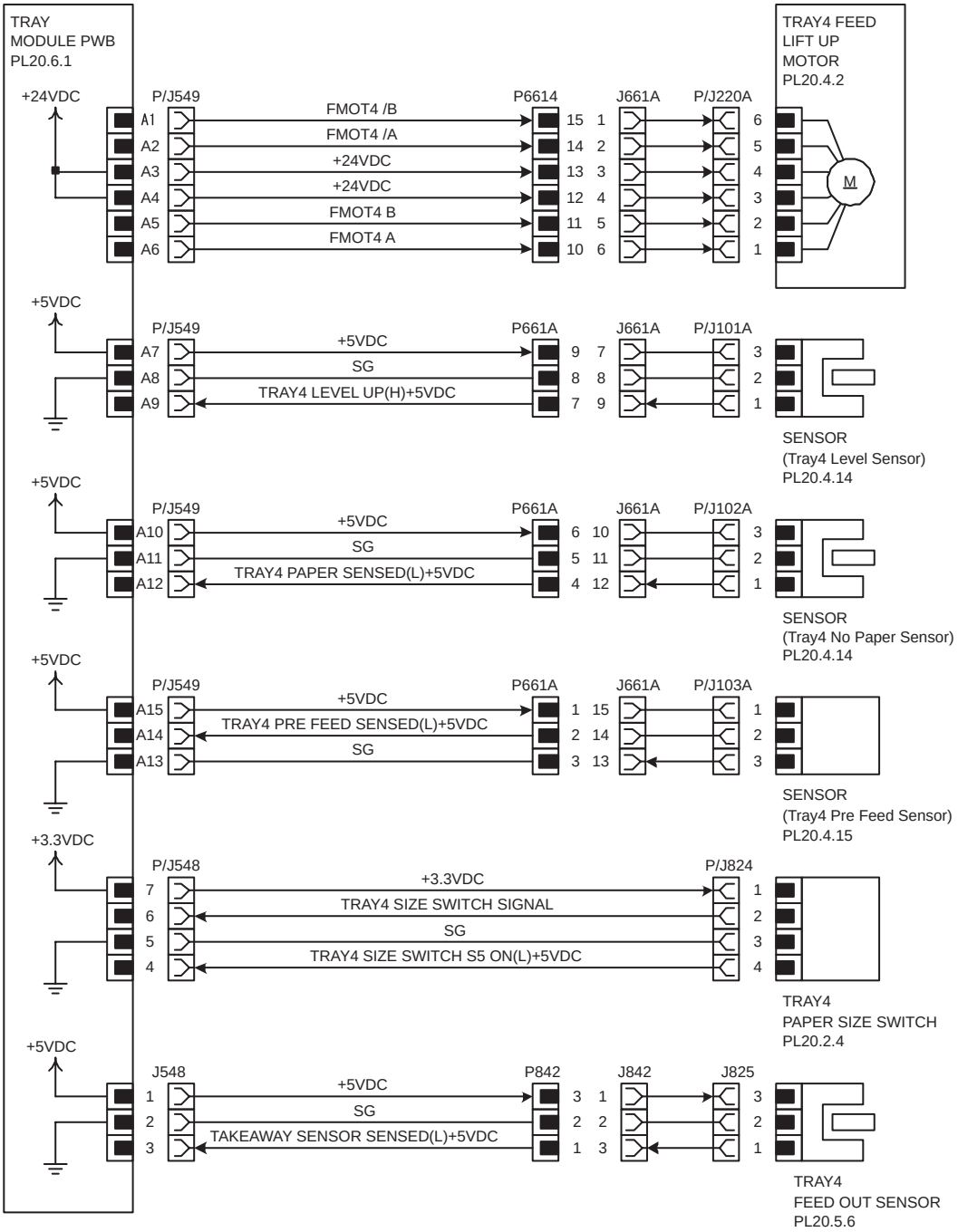
Signal line name	Description
FMOT3 A, FMOT3 B, FMOT3 /A, FMOT3 /B	TRAY3 FEED LIFT UP MOTOR exciting signal
TRAY3 LEVEL UP(H)+5VDC	Rise (paper feed possible level) detection signal of plate in Tray3 by SENSOR (Tray3 Level Sensor)
TRAY3 PAPER SENSED(L)+5VDC	Paper detection signal in Tray3 of SENSOR (Tray3 No Paper Sensor)
TRAY3 PRE FEED SENSED(L)+5VDC	Feed paper detection signal from Tray3 by SENSOR (Tray3 Pre Feed Sensor)
TRAY3 SIZE SWITCH SIGNAL	Paper size detection signal (analog value) of TRAY3 PAPER SIZE SWITCH
TRAY3 SIZE SWITCH S5 ON(L)+5VDC	S5 in TRAY3 PAPER SIZE SWITCH ON/OFF detection signal
TRAY3 FEED OUT PAPER SENSED(L)+5VDC	Paper detection signal by TRAY3 FEED OUT SENSOR in transport section

Paper size detection

- The ON/OFF pattern of each switch (S1-S5) of TRAY3 PAPER SIZE SWITCH and the relation of paper size and the output voltage of TRAY3 SIZE SWITCH SIGNAL are as follows.

Paper Size	S1	S2	S3	S4	S5	Output Voltage(V)
No Tray	OFF	OFF	OFF	OFF	OFF	3.06Å}0.05
5.5"Å~8.5" SEF/A5 SEF	OFF	OFF	ON	OFF	OFF	2.65Å}0.05
B5 SEF	OFF	OFF	ON	ON	ON	2.45Å}0.05
8.5"Å~13"SEF	OFF	ON	OFF	ON	OFF	2.05Å}0.05
8.5"Å~14"SEF	OFF	ON	OFF	ON	ON	
A4 SEF	OFF	ON	ON	OFF	OFF	1.85Å}0.05
8.5"Å~11"SEF	OFF	ON	ON	OFF	ON	
A4 LEF	ON	OFF	ON	OFF	OFF	1.07Å}0.05
A3 SEF	ON	OFF	ON	ON	OFF	0.87Å}0.05
B5 LEF/ Executive LEF	ON	ON	OFF	OFF	ON	0.68Å}0.05
8K SEF (TFX/GCO)	ON	ON	OFF	ON	OFF	0.49Å}0.05
B4 SEF	ON	ON	OFF	ON	ON	
8.5"Å~11"LEF	ON	ON	ON	OFF	OFF	0.29Å}0.05
16K LEF(TFX/GCO)	ON	ON	ON	OFF	ON	
11"Å~17"LEF	ON	ON	ON	ON	ON	0.10Å}0.05

3 Tray4


TRAY
MODULE PWB
PL20.6.1
TRAY4 FEED
LIFT UP
MOTOR
PL20.4.2
+24VDC
P/J549
P6614
J661A
P/J220A
A1
A2
A3
A4
A5
A6
FMOT4 /B
FMOT4 /A
+24VDC
+24VDC
FMOT4 B
FMOT4 A
M
+5VDC
P/J549
P661A
J661A
P/J101A
A7
A8
A9
+5VDC
SG
TRAY4 LEVEL UP(H)+5VDC
SENSOR
(Tray4 Level Sensor)
PL20.4.14
+5VDC
P/J549
P661A
J661A
P/J102A
A10
A11
A12
+5VDC
SG
TRAY4 PAPER SENSED(L)+5VDC
SENSOR
(Tray4 No Paper Sensor)
PL20.4.14
+5VDC
P/J549
P661A
J661A
P/J103A
A15
A14
A13
+5VDC
TRAY4 PRE FEED SENSED(L)+5VDC
SG
SENSOR
(Tray4 Pre Feed Sensor)
PL20.4.15
+3.3VDC
P/J548
P/J824
7
6
5
4
+3.3VDC
TRAY4 SIZE SWITCH SIGNAL
SG
TRAY4 SIZE SWITCH S5 ON(L)+5VDC
TRAY4
PAPER SIZE SWITCH
PL20.2.4
+5VDC
J548
P842
J842
J825
1
2
3
+5VDC
SG
TAKEAWAY SENSOR SENSED(L)+5VDC
TRAY4
FEED OUT SENSOR
PL20.5.6

Signal line name	Description
FMOT4 A, FMOT4 B, FMOT4 /A, FMOT4 /B	TRAY4 FEED LIFT UP MOTOR exciting signal
TRAY4 LEVEL UP(H)+5VDC	Rise (paper feed possible level) detection signal of plate in Tray4 by SENSOR (Tray4 Level Sensor)
TRAY4 PAPER SENSED(L)+5VDC	Paper detection signal in Tray4 of SENSOR (Tray4 No Paper Sensor)
TRAY4 PRE FEED SENSED(L)+5VDC	Feed paper detection signal from Tray4 by SENSOR (Tray4 Pre Feed Sensor)
TRAY4 SIZE SWITCH SIGNAL	Paper size detection signal (analog value) of TRAY4 PAPER SIZE SWITCH
TRAY4 SIZE SWITCH S5 ON(L)+5VDC	S5 in TRAY4 PAPER SIZE SWITCH ON/OFF detection signal
TRAY4 FEED OUT PAPER SENSED(L)+5VDC	Paper detection signal by TRAY4 FEED OUT SENSOR in transport section

◆ Paper size detection

The ON/OFF pattern of each switch (S1-S5) of TRAY4 PAPER SIZE SWITCH and the relation of paper size and the output voltage of TRAY4 SIZE SWITCH SIGNAL are as follows.

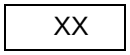
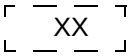
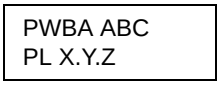
Paper Size	S1	S2	S3	S4	S5	Output Voltage(V)
No Tray	OFF	OFF	OFF	OFF	OFF	3.06Å}0.05
5.5"Å~8.5"SEF/A5 SEF	OFF	OFF	ON	OFF	OFF	2.65Å}0.05
B5 SEF	OFF	OFF	ON	ON	ON	2.45Å}0.05
8.5"Å~13"SEF	OFF	ON	OFF	ON	OFF	2.05Å}0.05
8.5"Å~14"SEF	OFF	ON	OFF	ON	ON	
A4 SEF	OFF	ON	ON	OFF	OFF	1.85Å}0.05
8.5"Å~11"SEF	OFF	ON	ON	OFF	ON	
A4 LEF	ON	OFF	ON	OFF	OFF	1.07Å}0.05
A3 SEF	ON	OFF	ON	ON	OFF	0.87Å}0.05
B5 LEF/ Executive LEF	ON	ON	OFF	OFF	ON	0.68Å}0.05
8K SEF (TFX/GCO)	ON	ON	OFF	ON	OFF	0.49Å}0.05
B4 SEF	ON	ON	OFF	ON	ON	
8.5"Å~11"LEF	ON	ON	ON	OFF	OFF	0.29Å}0.05
16K LEF(TFX/GCO)	ON	ON	ON	OFF	ON	
11"Å~17"LEF	ON	ON	ON	ON	ON	0.10Å}0.05

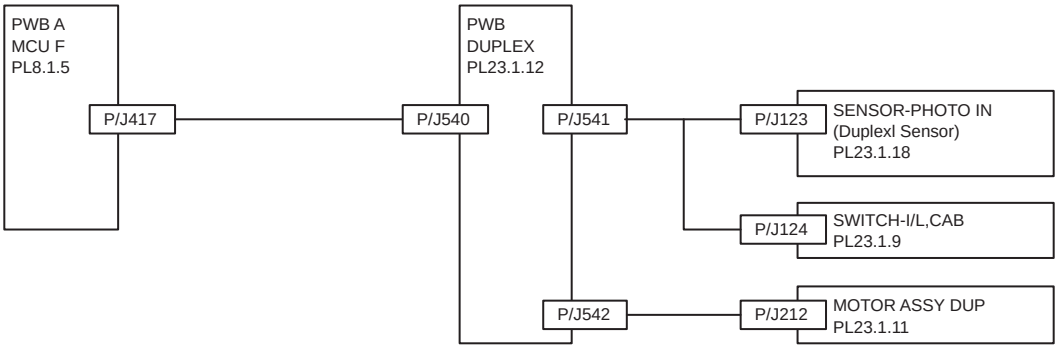
Duplex

General Wiring Diagram

The following describes the legend of the general wiring diagram shown on the next page.

Symbols	Description
————	Denotes a connection between parts with harnesses and wires.

Symbols	Description
	A frame not having parts name inside denotes the connector (P/J). Numeric value inside implies the connector number.
	A frame of broken line denotes the connector (P/J) written in several places separately. Numeric value inside implies the connector number.
	A frame having parts name inside denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	A frame of dotted line denotes the section in "2. Wiring Diagram between Parts", and numeric value implies the section number.



Wiring Diagram between Parts

Configuration

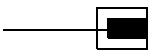
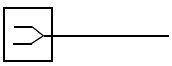
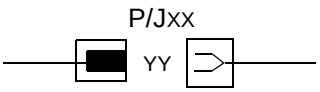
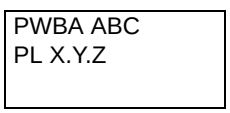
The wiring diagram is separated into 1 sections to show detailed connection between parts.

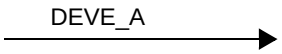
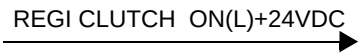
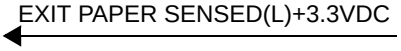
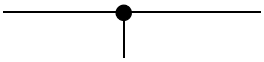
- 1 Duplex
  - Connection between PWBA DUPLEX and SENSOR-PHOTO IN (Duplex Sensor)
  - Connection between PWBA DUPLEX and SWITCH-I/L,CAB (Duplex Open Switch)
  - Connection between PWBA DUPLEX and MOTOR ASSY DUP
  - Connection between PWBA DUPLEX and PWB A MCU F

Notes on Using the Wiring Diagram between Parts

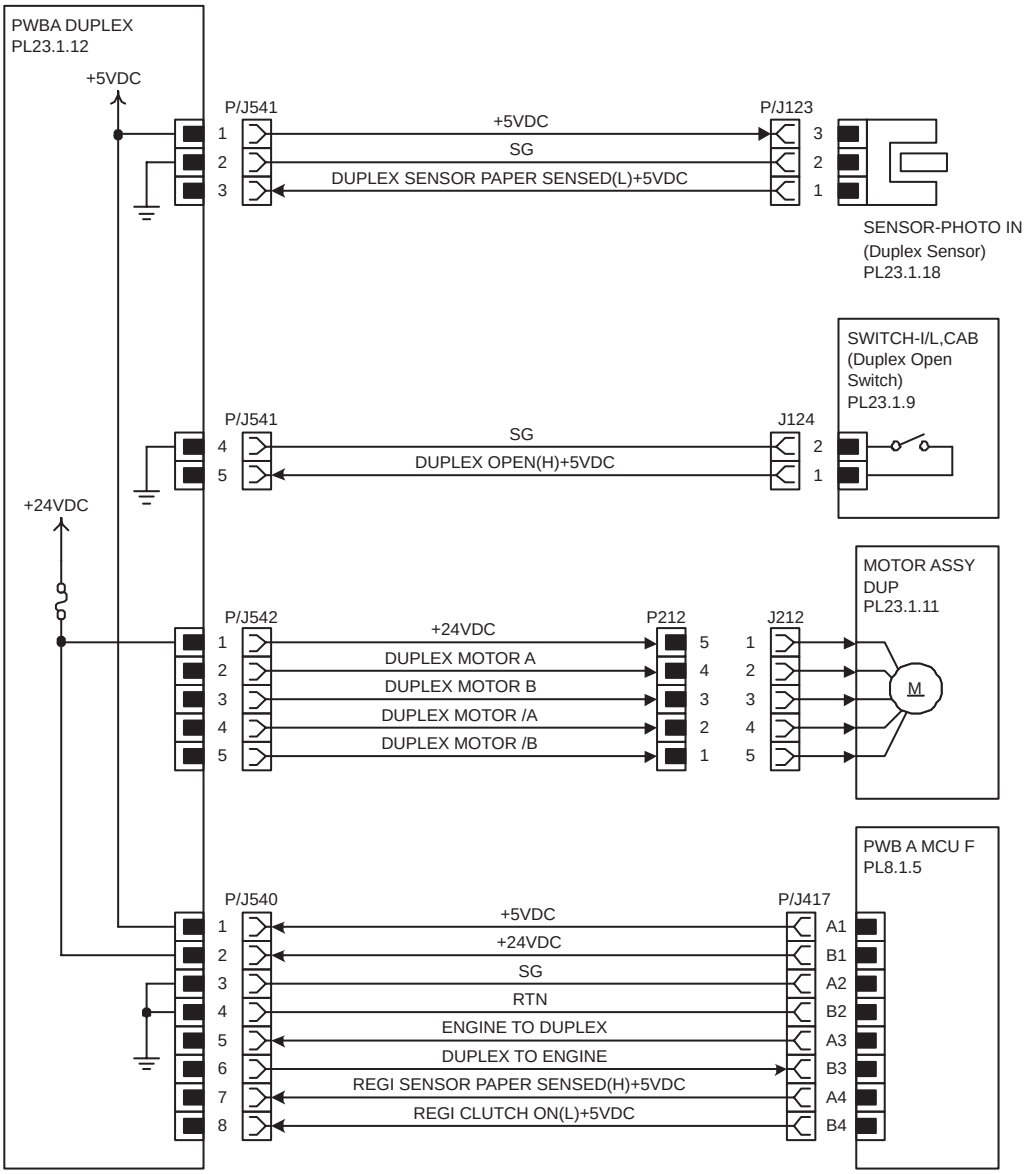
The following describes the legend of the wiring diagrams between parts shown on the following pages.

Note that the description of general symbols is omitted.

Symbols	Description
	Denotes a plug.
	Denotes a jack.
	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.
	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.

Symbols	Description
	Denotes functional parts attached with functional parts name.
	Denotes the control and its outline in PWB.
	Denotes a connection between parts with harnesses or wires, attached with signal name/contents.
	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes the function, and logic value of the signal when the function operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes a connection between wires.
I/L +24VDC	Denotes DC voltage when the interlock switch in HNB MCU WITH CPU turns on
+5VDC +3.3VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.
RTN	Denotes the return.

1 Duplex

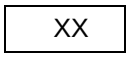
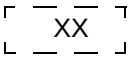
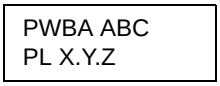


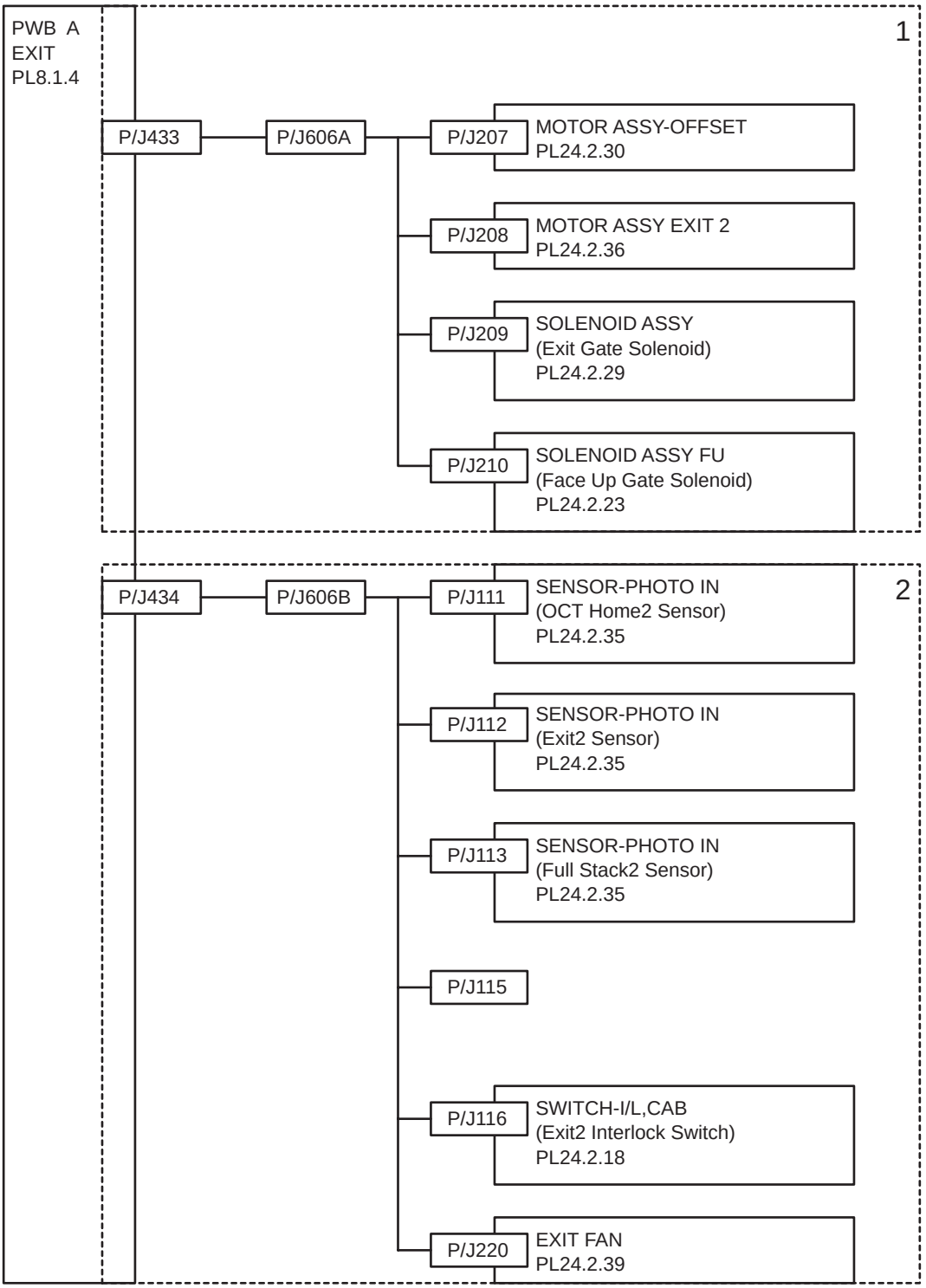
Signal line name	Description
DUPLEX SENSOR PAPER SENSED(L)+5VDC	Paper detection signal by SENSOR-PHOTO IN (Duplex Sensor) in duplex
DUPLEX OPEN(H)+5VDC	DUPLEX COVER open/close detection signal by SWITCH-I/L,CAB (Duplex Open Switch)
DUPLEX MOTOR A, DUPLEX MOTOR B, DUPLEX MOTOR /A, DUPLEX MOTOR /B,	MOTOR ASSY DUP exciting signal
ENGINE TO DUPLEX	Communication signal of PWB A MCU F (Engine) and PWBA DUPLEX (Duplex) (Engine->Duplex)
DUPLEX TO ENGINE	Communication signal of PWBA DUPLEX (Duplex) and PWB A MCU F (Engine) (Duplex->Engine)
REGI SENSOR PAPER SENSED(H)+5VDC	Paper detection signal by SNR ASSY REGI in Registration (Engine->Duplex)
REGI CLUTCH ON(L)+5VDC	CLUTCH ASY REGI H(Regi Clutch) ON/OFF control signal (Engine->Duplex)

Exit

General Wiring Diagram

The following describes the legend of the general wiring diagram shown on the next page.

Symbols	Description
	Denotes a connection between parts with harnesses and wires.
	A frame not having parts name inside denotes the connector (P/J). Numeric value inside implies the connector number.
	A frame of broken line denotes the connector (P/J) written in several places separately. Numeric value inside implies the connector number.
	A frame having parts name inside denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	A frame of dotted line denotes the section in "2. Wiring Diagram between Parts", and numeric value implies the section number.



Wiring Diagram between Parts

Configuration

The wiring diagram is separated into 2 sections to show detailed connection between parts.

- 1 Motor / Solenoid
  - Connection between PWB A EXIT and MOTOR ASSY-OFFSET

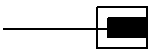
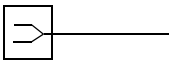
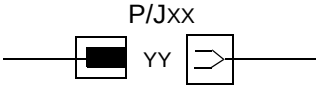
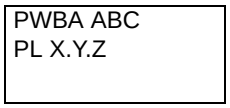
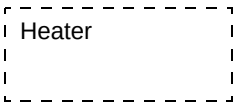
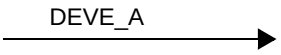
- Connection between PWB A EXIT and MOTOR ASSY EXIT 2
- Connection between PWB A EXIT and SOLENOID ASSY (Exit Gate Solenoid)
- Connection between PWB A EXIT and SOLENOID ASSY FU (Face Up Gate Solenoid)

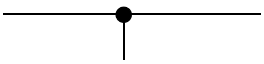
• 2 Sensor / Fan
  - Connection between PWB A EXIT and SENSOR-PHOTO IN (OCT Home2 Sensor)
  - Connection between PWB A EXIT and SENSOR-PHOTO IN (Exit2 Sensor)
  - Connection between PWB A EXIT and SENSOR-PHOTO IN (Full Stack2 Sensor)
  - Connection between PWB A EXIT and SWITCH-I/L,CAB (Face Up Detect Switch)
  - Connection between PWB A EXIT and SWITCH-I/L,CAB (Exit2 Interlock)
  - Connection between PWB A EXIT and EXIT FAN

Notes on Using the Wiring Diagram between Parts

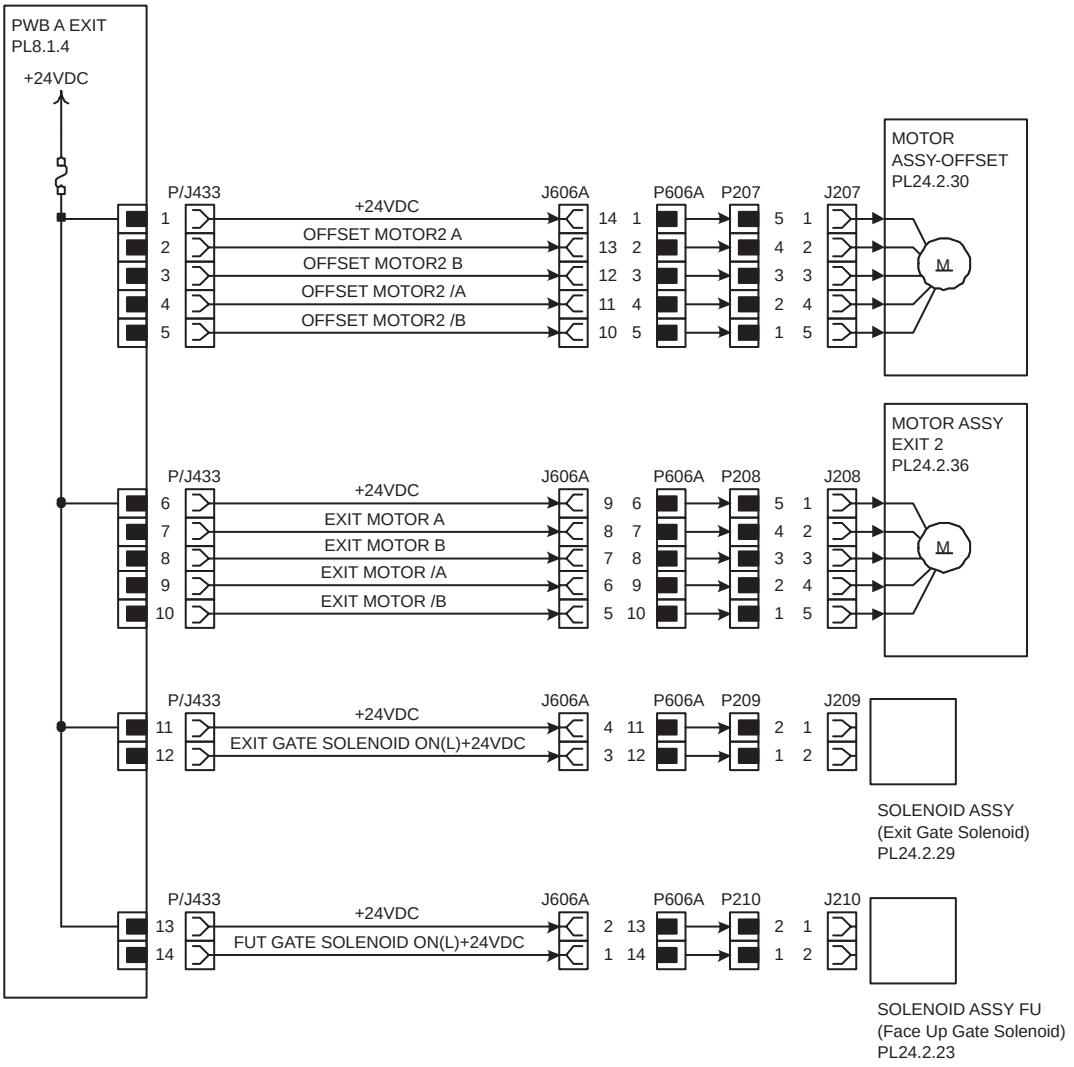
The following describes the legend of the wiring diagrams between parts shown on the following pages.

Note that the description of general symbols is omitted.

Symbols	Description
	Denotes a plug.
	Denotes a jack.
	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.
	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	Denotes functional parts attached with functional parts name.
	Denotes the control and its outline in PWB.
	Denotes a connection between parts with harnesses or wires, attached with signal name/contents.

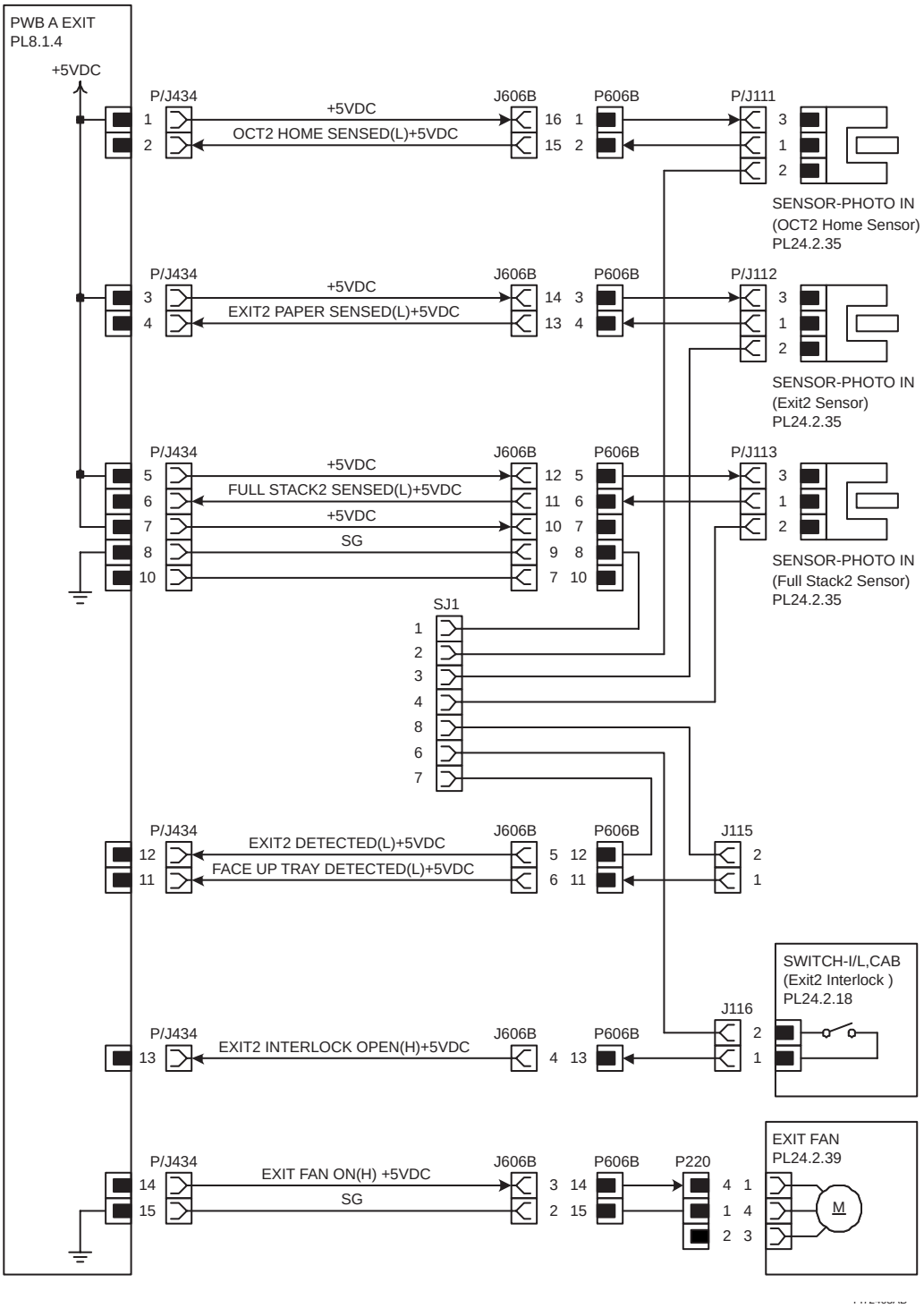
Symbols	Description
REGI CLUTCH ON(L)+24VDC →	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
← EXIT PAPER SENSED(L)+3.3VDC	Denotes the function, and logic value of the signal when the function operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes a connection between wires.
I/L +24VDC	Denotes DC voltage when the interlock switch in HNB MCU WITH CPU turns on
+5VDC +3.3VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.
RTN	Denotes the return.

1 Motor / Solenoid



Signal line name	Description
OFFSET MOTOR2 A, OFFSET MOTOR2 B, OFFSET MOTOR2 /A, OFFSET MOTOR2 /B	MOTOR ASSY-OFFSET exciting signal
EXIT MOTOR A, EXIT MOTOR B, EXIT MOTOR /A, EXIT MOTOR /B,	MOTOR ASSY EXIT 2 exciting signal
EXIT GATE SOLENOID ON(L)+24VDC	SOLENOID ASSY (Exit Gate Solenoid) ON/OFF control signal
FUT GATE SOLENOID ON(L)+24VDC	SOLENOID ASSY FU (Face Up Gate Solenoid) ON/OFF control signal

2 Sensor / Fan


PWB A EXIT
PL8.1.4
+5VDC
P/J434
J606B
P606B
P/J111
+5VDC
OCT2 HOME SENSED(L)+5VDC
SENSOR-PHOTO IN
(OCT2 Home Sensor)
PL24.2.35
P/J112
EXIT2 PAPER SENSED(L)+5VDC
SENSOR-PHOTO IN
(Exit2 Sensor)
PL24.2.35
P/J113
FULL STACK2 SENSED(L)+5VDC
SG
SENSOR-PHOTO IN
(Full Stack2 Sensor)
PL24.2.35
SJ1
J115
EXIT2 DETECTED(L)+5VDC
FACE UP TRAY DETECTED(L)+5VDC
SWITCH-I/L,CAB
(Exit2 Interlock)
PL24.2.18
J116
EXIT2 INTERLOCK OPEN(H)+5VDC
EXIT FAN
PL24.2.39
P220
EXIT FAN ON(H) +5VDC
SG
M

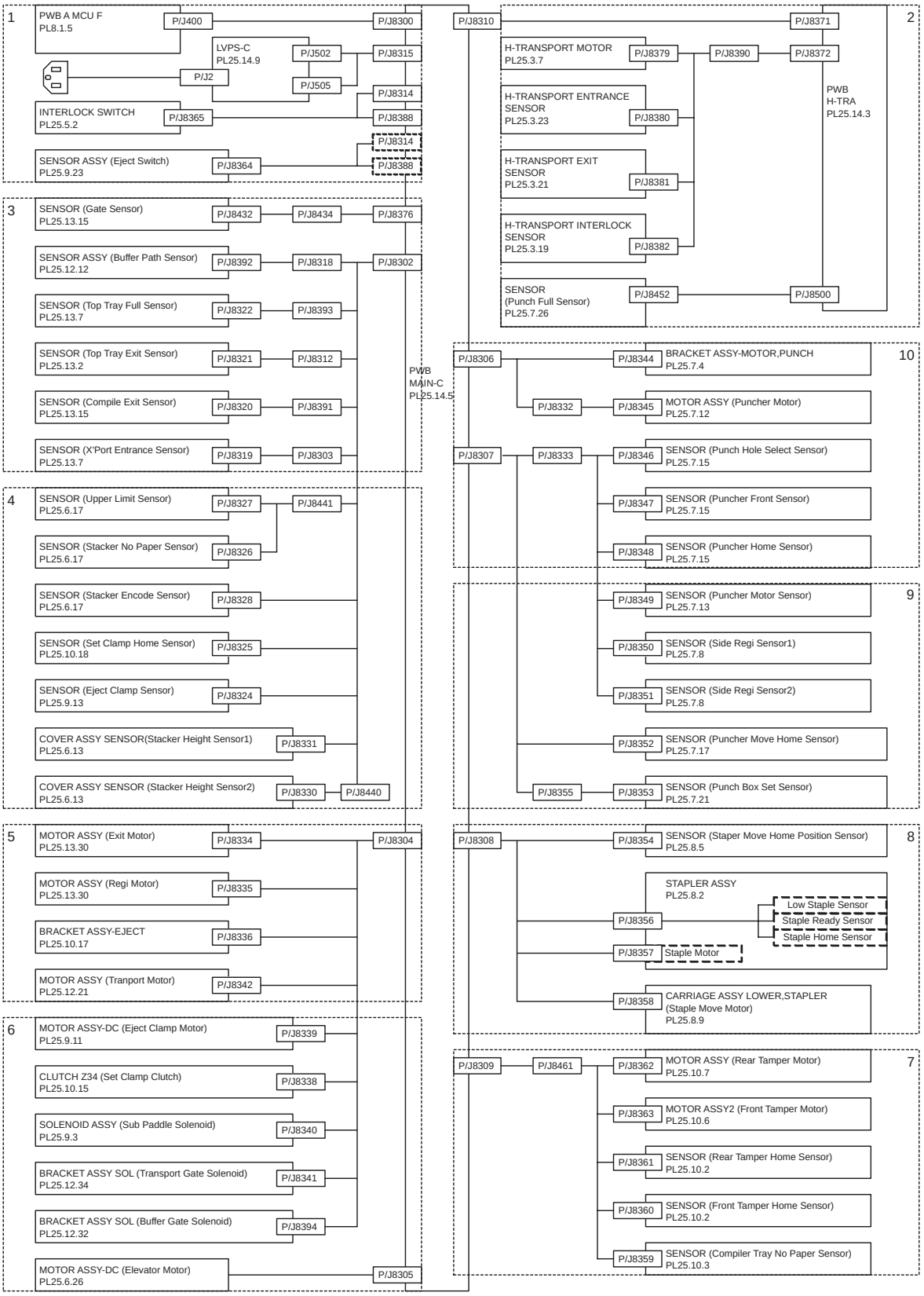
Signal line name	Description
OCT2 HOME SENSED(L)+5VDC	OCT2 home position detection signal by SENSOR-PHOTO IN (OCT2 Home Sensor)
EXIT2 PAPER SENSED(L)+5VDC	Paper detection signal by SENSOR-PHOTO IN (Exit2 Sensor) in Exit2 transport section
FULL STACK2 SENSED(L)+5VDC	Stacker tray paper full detection signal by SENSOR-PHOTO IN (Full Stack2 Sensor)
EXIT2 DETECTED(L)+5VDC	Exit2 set detection signal
FACE UP TRAY DETECTED(L)+5VDC	Face Up Tray wearing detection signal by SWITCH-I/L,CAB (Face Up Detect Switch)
EXIT2 INTERLOCK OPEN(H)+5VDC	Exit2 Cover Open/close detection signal by SWITCH-I/L,CAB (Exit2 Interlock)
EXIT FAN ON(H) +5VDC	EXIT FAN ON/OFF control signal

Finisher

General Wiring Diagram

The following describes the legend of the general wiring diagram shown on the next page.

Symbols	Description
———————	Denotes a connection between parts with harnesses and wires.
XX	A frame not having parts name inside denotes the connector (P/J). Numeric value inside implies the connector number.
XX	A frame of broken line denotes the connector (P/J) written in several places separately. Numeric value inside implies the connector number.
PWBA ABC PL X.Y.Z	A frame having parts name inside denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
1	A frame of dotted line denotes the section in "2. Wiring Diagram between Parts", and numeric value implies the section number.



Configuration

The wiring diagram is separated into 10 sections to show detailed connection between parts.

- 1 Power Supply
  - Connection between PWB MAIN-C and PWB A MCU F
  - Connection between PWB MAIN-C and LVPS-C
  - Connection between PWB MAIN-C and PWB T-TRA
  - Connection between PWB MAIN-C and INTERLOCK SWITCH (Front Door Switch)
  - Connection between PWB MAIN-C and SENSOR ASSY (Eject Switch)

- 2 H-Transport
  - Connection between PWB T-TRA and H-TRANSPORT MOTOR
  - Connection between PWB T-TRA and H-TRANSPORT ENTRANCE SENSOR
  - Connection between PWB T-TRA and H-TRANSPORT EXIT SENSOR
  - Connection between PWB T-TRA and H-TRANSPORT INTERLOCK SENSOR
  - Connection between PWB T-TRA and SENSOR (Punch Full Sensor)

- 3 Sensor (Paper feed section)
  - Connection between PWB MAIN-C and SENSOR ASSY (Buffer Path Sensor)
  - Connection between PWB MAIN-C and SENSOR (Top Tray Full Sensor)
  - Connection between PWB MAIN-C and SENSOR (Top Tray Exit Sensor)
  - Connection between PWB MAIN-C and SENSOR (Compile Exit Sensor)
  - Connection between PWB MAIN-C and SENSOR (XÕ Port Entrance Sensor)
  - Connection between PWB MAIN-C and SENSOR (Gate Sensor)

- 4 Sensor (Exit section)
  - Connection between PWB MAIN-C and SENSOR (Upper Limit Sensor)
  - Connection between PWB MAIN-C and SENSOR (Stacker No Paper Sensor)
  - Connection between PWB MAIN-C and SENSOR (Stacker Encode Sensor)
  - Connection between PWB MAIN-C and SENSOR (Set Clamp Home Sensor)
  - Connection between PWB MAIN-C and SENSOR (Eject Clamp Sensor)
  - Connection between PWB MAIN-C and COVER ASSY SENSOR (Stacker Height Sensor1)
  - Connection between PWB MAIN-C and COVER ASSY SENSOR (Stacker Height Sensor2)

- 5 Motor
  - Connection between PWB MAIN-C and MOTOR ASSY (Exit Motor)
  - Connection between PWB MAIN-C and MOTOR ASSY (Regi Motor)
  - Connection between PWB MAIN-C and BRACKET ASSY-EJECT
  - Connection between PWB MAIN-C and MOTOR ASSY (Transport Motor)

- 6 Motor / Clutch / Solenoid
  - Connection between PWB MAIN-C and MOTOR ASSY-DC (Eject Clamp Motor)
  - Connection between PWB MAIN-C and CLUTCH Z34 (Set Clamp Clutch)
  - Connection between PWB MAIN-C and SOLENOID ASSY (Sub Paddle Solenoid)
  - Connection between PWB MAIN-C and BRACKET ASSY SOL (Transport Gate Solenoid)
  - Connection between PWB MAIN-C and BRACKET ASSY SOL (Buffer Gate Solenoid)
  - Connection between PWB MAIN-C and MOTOR ASSY-DC (Elevator Motor)

- 7 Tamper
  - Connection between PWB MAIN-C and MOTOR ASSY (Rear Tamper Motor)
  - Connection between PWB MAIN-C and MOTOR ASSY2 (Front Tamper Motor)
  - Connection between PWB MAIN-C and SENSOR (Rear Tamper Home Sensor)
  - Connection between PWB MAIN-C and SENSOR (Front Tamper Home Sensor)
  - Connection between PWB MAIN-C and SENSOR (Compiler Tray No Paper Sensor)

- 8 Stapler
  - Connection between PWB MAIN-C and SENSOR (Stapler Move Home Position Sensor)
  - Connection between PWB MAIN-C and STAPLER ASSY
  - Connection between PWB MAIN-C and CARRIAGE ASSY LOWER, STAPLER (Stapler Move Motor)

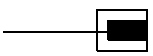
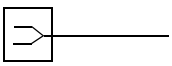
- 9 Puncher1
  - Connection between PWB MAIN-C and SENSOR (Punch Box Set Sensor)
  - Connection between PWB MAIN-C and SENSOR (Punch Move Home Sensor)
  - Connection between PWB MAIN-C and SENSOR (Side Regi Sensor1)
  - Connection between PWB MAIN-C and SENSOR (Side Regi Sensor2)
  - Connection between PWB MAIN-C and SENSOR (Puncher Motor Sensor)

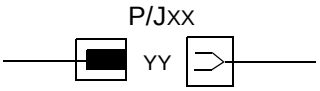
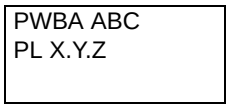
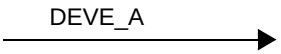
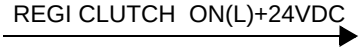
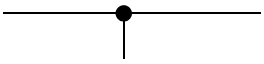
- 10 Puncher2
  - Connection between PWB MAIN-C and BRACKET ASSY-MOTOR,PUNCH
  - Connection between PWB MAIN-C and MOTOR ASSY (Puncher Motor)
  - Connection between PWB MAIN-C and SENSOR (Punch Hole Select Sensor)
  - Connection between PWB MAIN-C and SENSOR (Punch Front Sensor)
  - Connection between PWB MAIN-C and SENSOR (Punch Home Sensor)

Notes on Using the Wiring Diagram between Parts

The following describes the legend of the wiring diagrams between parts shown on the following pages.

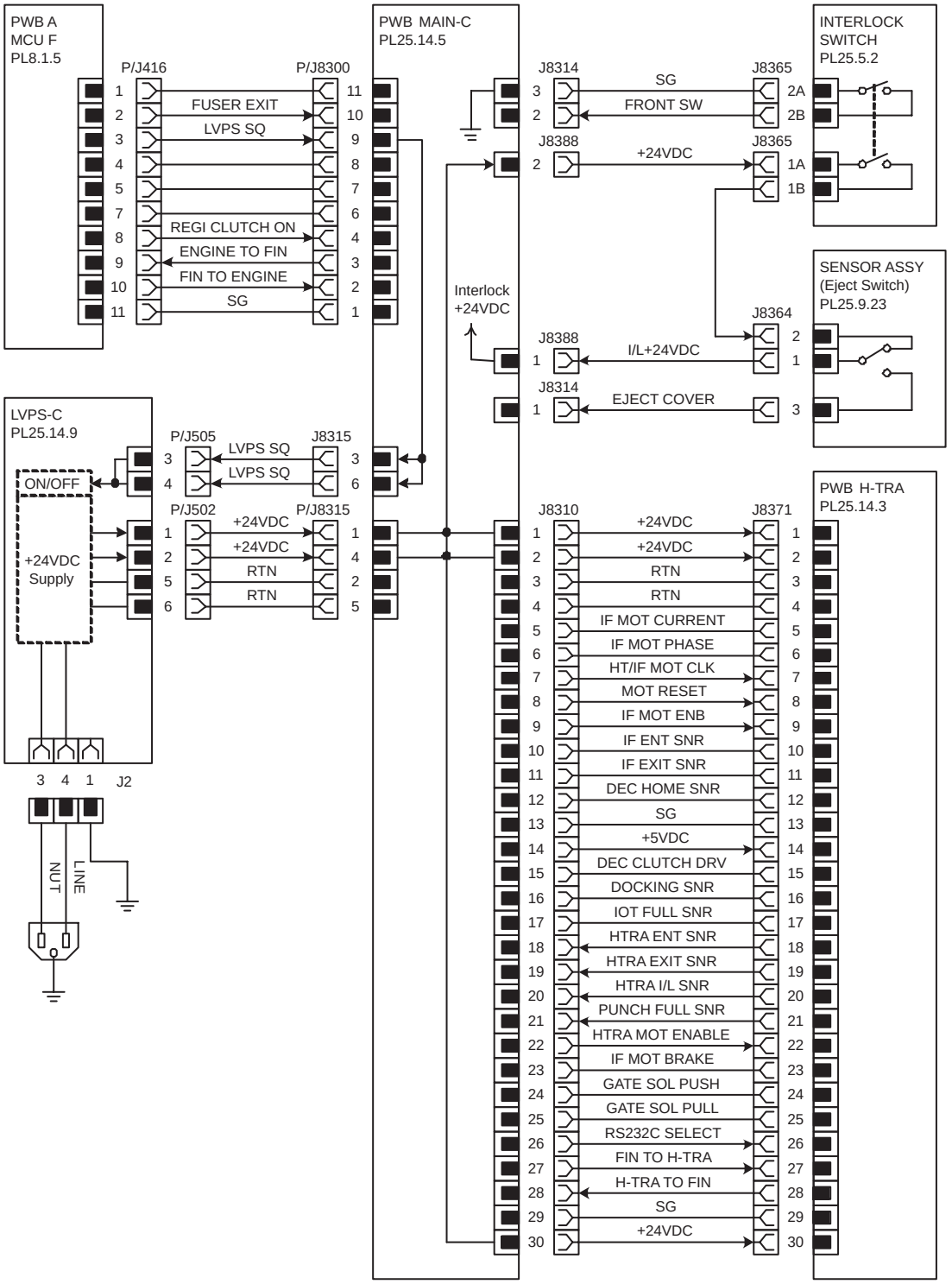
Note that the description of general symbols is omitted.

Symbols	Description
	Denotes a plug.
	Denotes a jack.

Symbols	Description
	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.
	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	Denotes functional parts attached with functional parts name.
	Denotes the control and its outline in PWB.
	Denotes a connection between parts with harnesses or wires, attached with signal name/contents.
	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes the function, and logic value of the signal when the function operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes a connection between wires.
I/L +24VDC	Denotes DC voltage when the interlock switch in HNB MCU WITH CPU turns on
+5VDC +3.3VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.

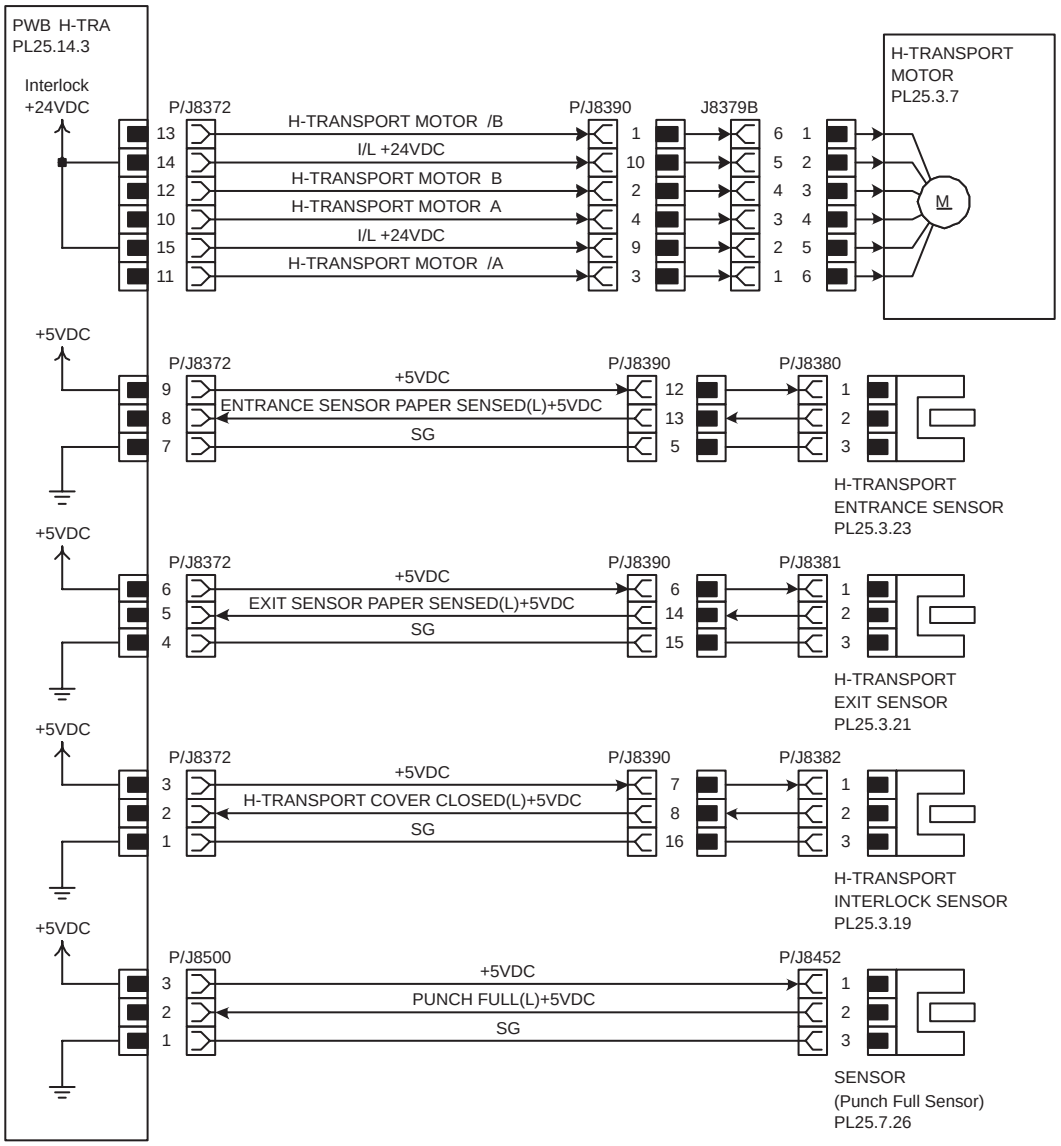
Symbols	Description
RTN	Denotes the return.

1 Power Supply



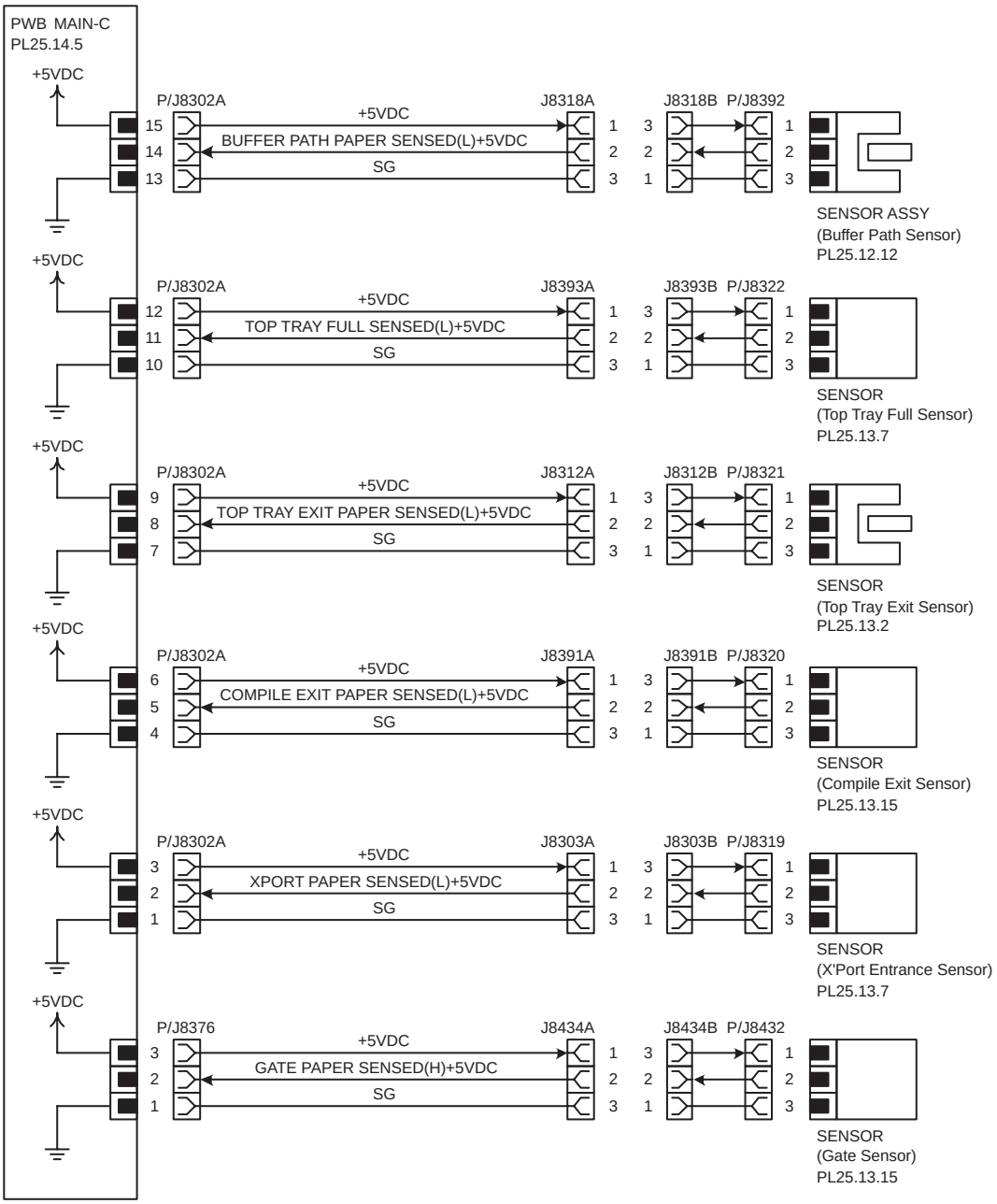
Signal line name	Description
LVPS SQ	ON/OFF control signal of LVPS-C (Finisher) from PWB A MCU F (Engine)
FUSER EXIT (FUSER EXIT PAPER SENSED(H)+5VDC)	Paper detection signal in fuser by Fuser Exit Sensor in FUSER ASSY (Engine->Finisher)
REGI CLUTCH ON (REGI CLUTCH ON(L)+5VDC)	CLUTCH ASY REGI H(Regi Clutch) ON/OFF control signal (Engine->Finisher)
ENGINE TO FIN	Communication signal of PWB A MCU F (Engine) and PWB MAIN-C (Finisher) (Engine->Finisher)
FIN TO ENGINE	Communication signal of PWB MAIN-C (Finisher) and PWB A MCU F (Engine) (Finisher->Engine)
FRONT SW	FINISHER FRONT DOOR open/close detection signal
EJECT COVER	FINISHER EJECT COVER open/close detection signal
IF MOT CURRENT	Not used
IF MOT PHASE	Not used
HT/IF MOT CLK	H-TRANSPORT MOTOR clock signal
MOT RESET	H-TRANSPORT MOTOR reset signal
IF MOT ENB	Current setting value switching signal of H-TRANSPORT MOTOR
IF ENT SNR	Not used
IF EXIT SNR	Not used
DEC HOME SNR	Not used
DEC CLUTCH DRV	Not used
DOCKING SNR	Not used
IOT FULL SNR	Not used
HTRA ENT SNR	Paper detection signal by H-TRANSPORT ENTRANCE SENSOR in H-Transport
HTRA EXIT SNR	Paper detection signal by H-TRANSPORT EXIT SENSOR in H-Transport
HTRA I/L SNR	H-TRANSPORT COVER open/close detection signal by H-TRANSPORT INTERLOCK SENSOR
PUNCH FULL SNR	Punch waste full detection signal of Punch dust box
HTRA MOT ENABLE	H-TRANSPORT MOTOR ON/OFF control signal
IF MOT BRAKE	Not used
GATE SOL PUSH	Not used
GATE SOL PULL	Not used
RS232C SELECT	Communication selection signal of Engine and PC (Download Mode change)
FIN TO H-TRA	Communication signal of PWB MAIN-C (Finisher) and PWB H-TRA(H-Transport) (Finisher->H-Transport)
H-TRA TO FIN	Communication signal of PWB H-TRA(H-Transport) and PWB MAIN-C (Finisher) (H-Transport->Finisher)

2 H-Transport



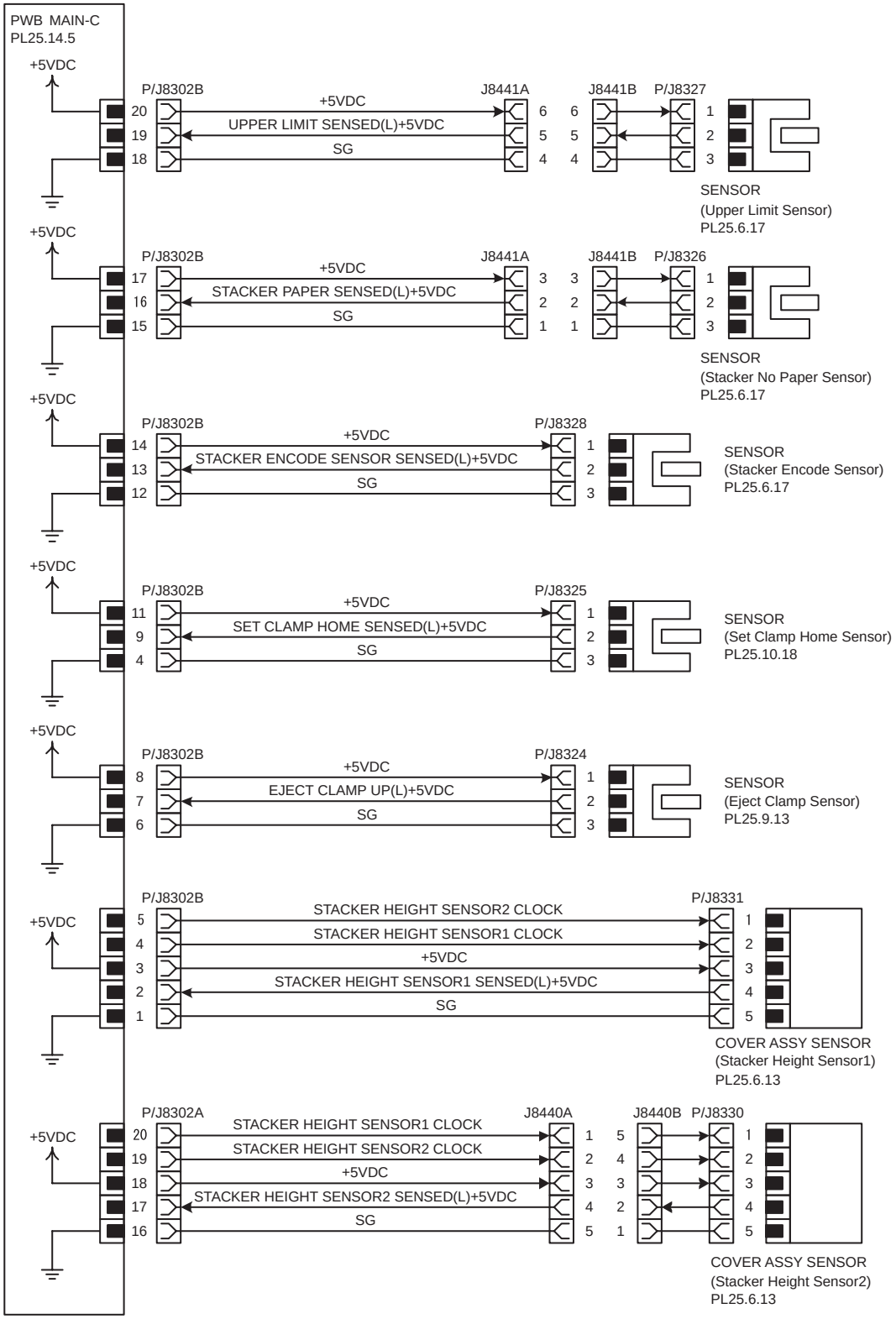
Signal line name	Description
H-TRANSPORT MOTOR A, H-TRANSPORT MOTOR B, H-TRANSPORT MOTOR /A, H-TRANSPORT MOTOR /B	H-TRANSPORT MOTOR exciting signal
ENTRANCE SENSOR PAPER SENSED(L)+5VDC	Paper detection signal by H-TRANSPORT ENTRANCE SENSOR in H-Transport
EXIT SENSOR PAPER SENSED(L)+5VDC	Paper detection signal by H-TRANSPORT EXIT SENSOR in H-Transport
H-TRANSPORT COVER CLOSED(L)+5VDC	H-TRANSPORT COVER open/close detection signal by H-TRANSPORT INTERLOCK SENSOR
PUNCH FULL(L)+5VDC	Punch waste full detection signal of Punch dust box by PUNCH FULL SENSOR

3 Sensor (Paper feed section)



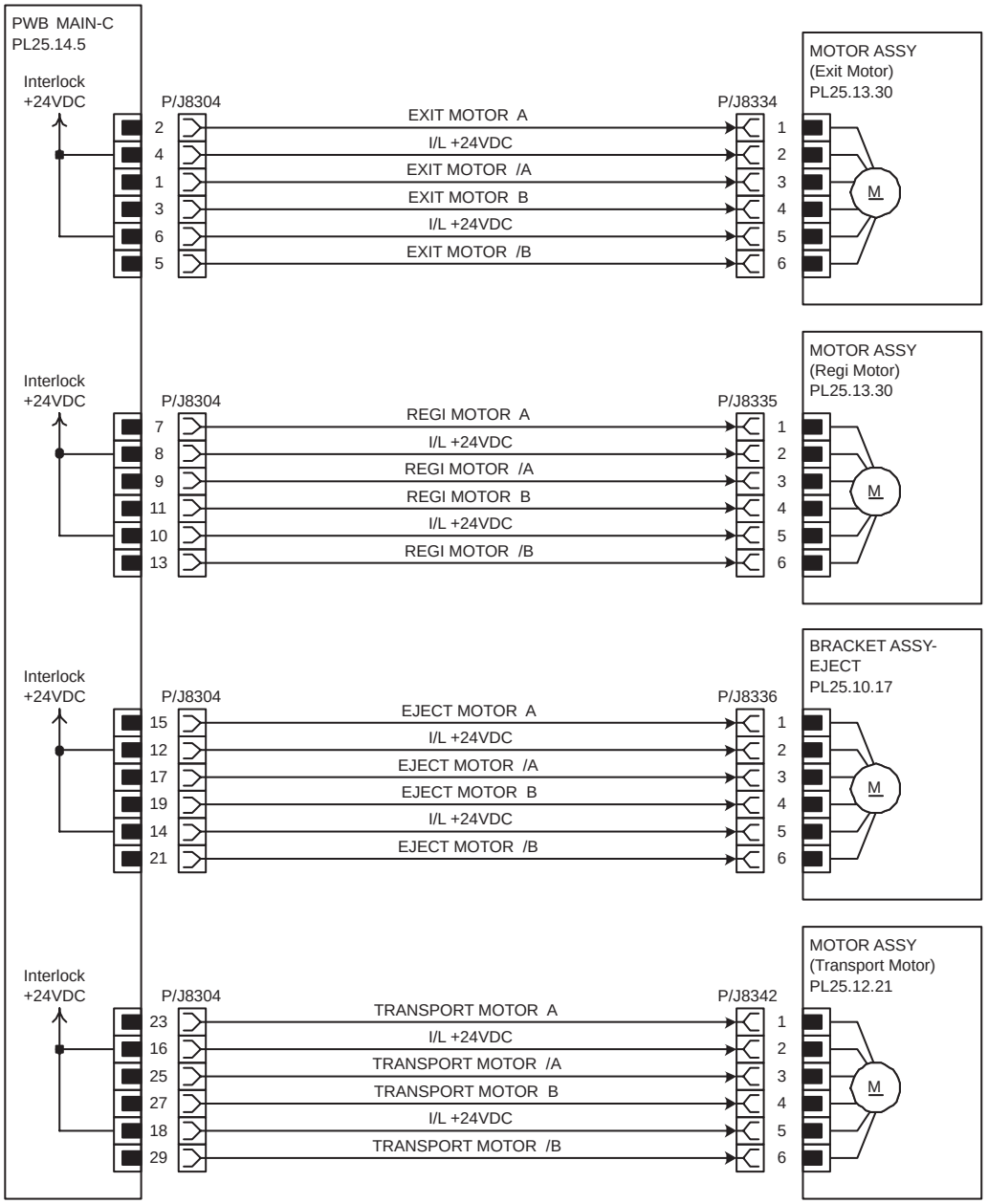
Signal line name	Description
BUFFER PATH PAPER SENSED(L)+5VDC	Paper detection signal by SENSOR ASSY (Buffer Path Sensor) in Buffer Path
TOP TRAY FULL SENSED(L)+5VDC	Top Tray paper full detection signal by SENSOR (Top Tray Full Sensor)
TOP TRAY EXIT PAPER SENSED(L)+5VDC	Discharge paper detection signal to Top Tray by SENSOR (Top Tray Exit Sensor)
COMPILE EXIT PAPER SENSED(L)+5VDC	Transport paper detection signal to Compile Tray by SENSOR (Compile Exit Sensor)
XPORT PAPER SENSED(L)+5VDC	Paper detection signal by SENSOR (X'Port Entrance Sensor) in transport section ÅB
GATE SENSOR PAPER SENSED(H) +5VDC	Paper detection signal by SENSOR (Gate Sensor) in gate

4 Sensor (Exit section)



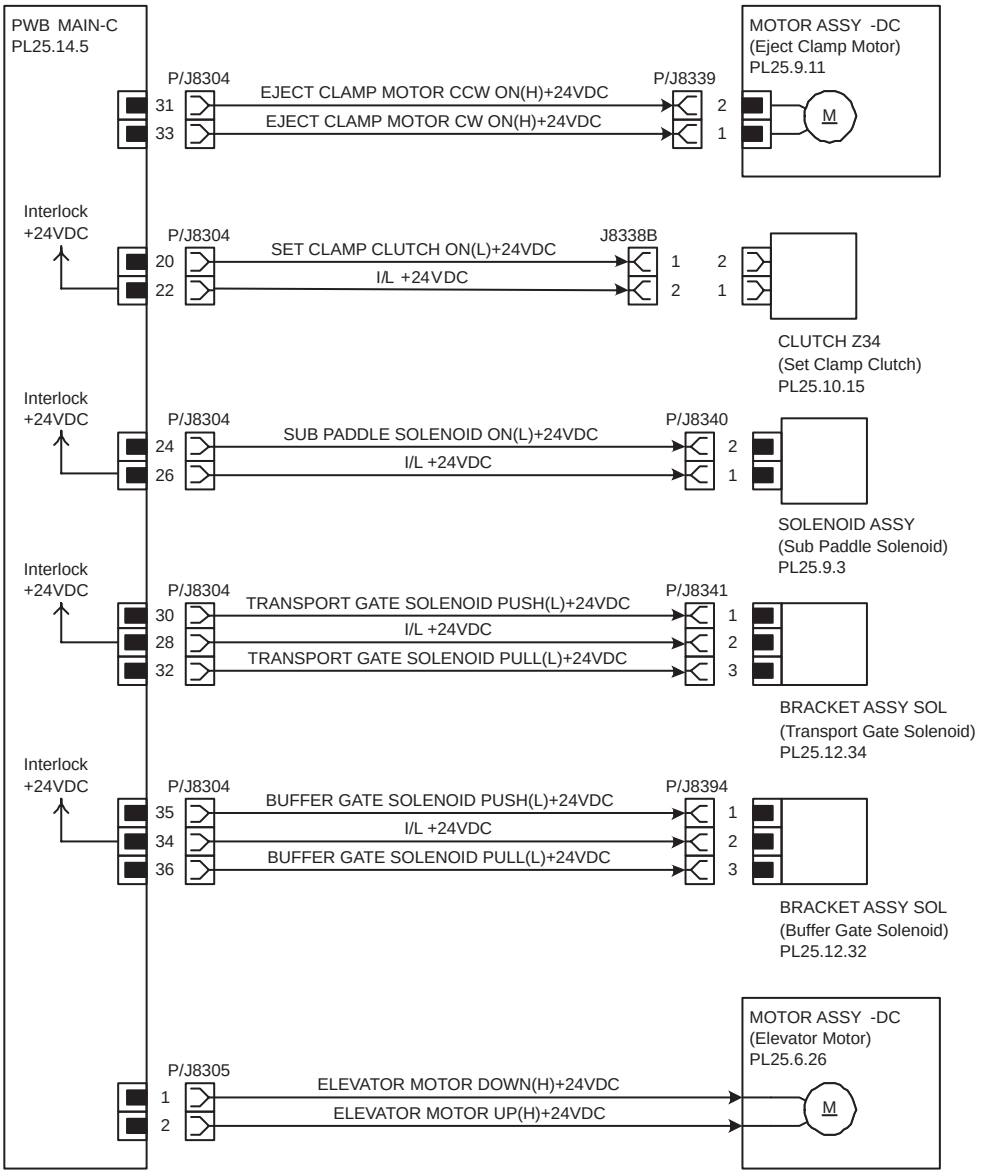
Signal line name	Description
UPPER LIMIT SENSED(L)+5VDC	Maximum detection signal at the time of Stack Tray rise by SENSOR (Upper Limit Sensor)
STACKER PAPER SENSED(L)+5VDC	Paper detection signal in Stack Tray by SENSOR (Stacker No Paper Sensor)
STACKER ENCODE SENSOR SENSED(L)+5VDC	Encoder pulse count detection signal by SENSOR (Stacker Encode Sensor) (The quantity of the paper discharged by the pulse count on Stack Tray is detected)
SET CLAMP HOME SENSED(L)+5VDC	Set Clamp home position detection signal by SENSOR (Set Clamp Home Sensor)
EJECT CLAMP UP(L)+5VDC	Eject Clamp up/down detection signal by SENSOR (Eject Clamp Sensor)
STACKER HEIGHT SENSOR1 CLOCK	Abnormal conditions signal for driving the infrared rays Light Emitting Diode of STACKER HEIGHT SENSOR1
STACKER HEIGHT SENSOR2 CLOCK	Abnormal conditions signal for driving the infrared rays Light Emitting Diode of STACKER HEIGHT SENSOR2
STACKER HEIGHT SENSOR1 SENSED(L)+5VDC	Height detection signal of Stack Tray by COVER ASSY SENSOR (Stacker Height Sensor1)
STACKER HEIGHT SENSOR2 SENSED(L)+5VDC	Height detection signal of Stack Tray by COVER ASSY SENSOR (Stacker Height Sensor2)

5 Motor



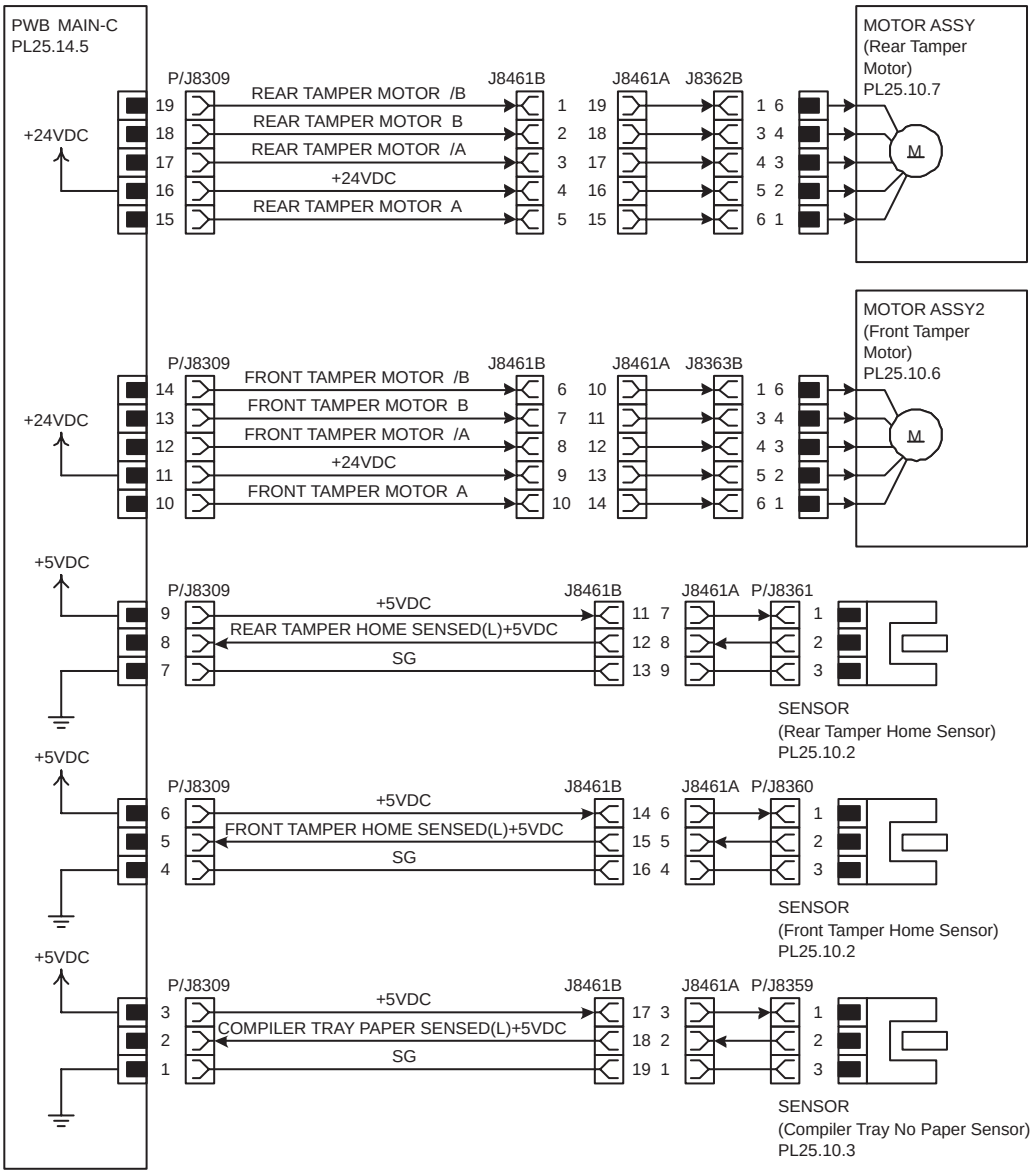
Signal line name	Description
EXIT MOTOR A, EXIT MOTOR /A, EXIT MOTOR B, EXIT MOTOR /B	MOTOR ASSY (Exit Motor) exciting signal
REGI MOTOR A, REGI MOTOR /A, REGI MOTOR B, REGI MOTOR/B	MOTOR ASSY (Regi Motor) exciting signal
EJECT MOTOR A, EJECT MOTOR /A, EJECT MOTOR B, EJECT MOTOR /B	BRACKET ASSY-EJECT exciting signal
TRANSPOER MOTOR A, TRANSPOER MOTOR /A, TRANSPOER MOTOR B, TRANSPOER MOTOR /B	MOTOR ASSY (Transport Motor) exciting signal

6 Motor / Clutch / Solenoid


PWB MAIN-C
PL25.14.5
P/J8304
31
33
EJECT CLAMP MOTOR CCW ON(H)+24VDC
EJECT CLAMP MOTOR CW ON(H)+24VDC
P/J8339
2
1
MOTOR ASSY -DC
(Eject Clamp Motor)
PL25.9.11
M
Interlock
+24VDC
P/J8304
20
22
SET CLAMP CLUTCH ON(L)+24VDC
I/L +24VDC
J8338B
1
2
2
1
CLUTCH Z34
(Set Clamp Clutch)
PL25.10.15
Interlock
+24VDC
P/J8304
24
26
SUB PADDLE SOLENOID ON(L)+24VDC
I/L +24VDC
P/J8340
2
1
SOLENOID ASSY
(Sub Paddle Solenoid)
PL25.9.3
Interlock
+24VDC
P/J8304
30
28
32
TRANSPORT GATE SOLENOID PUSH(L)+24VDC
I/L +24VDC
TRANSPORT GATE SOLENOID PULL(L)+24VDC
P/J8341
1
2
3
BRACKET ASSY SOL
(Transport Gate Solenoid)
PL25.12.34
Interlock
+24VDC
P/J8304
35
34
36
BUFFER GATE SOLENOID PUSH(L)+24VDC
I/L +24VDC
BUFFER GATE SOLENOID PULL(L)+24VDC
P/J8394
1
2
3
BRACKET ASSY SOL
(Buffer Gate Solenoid)
PL25.12.32
P/J8305
1
2
ELEVATOR MOTOR DOWN(H)+24VDC
ELEVATOR MOTOR UP(H)+24VDC
MOTOR ASSY -DC
(Elevator Motor)
PL25.6.26
M

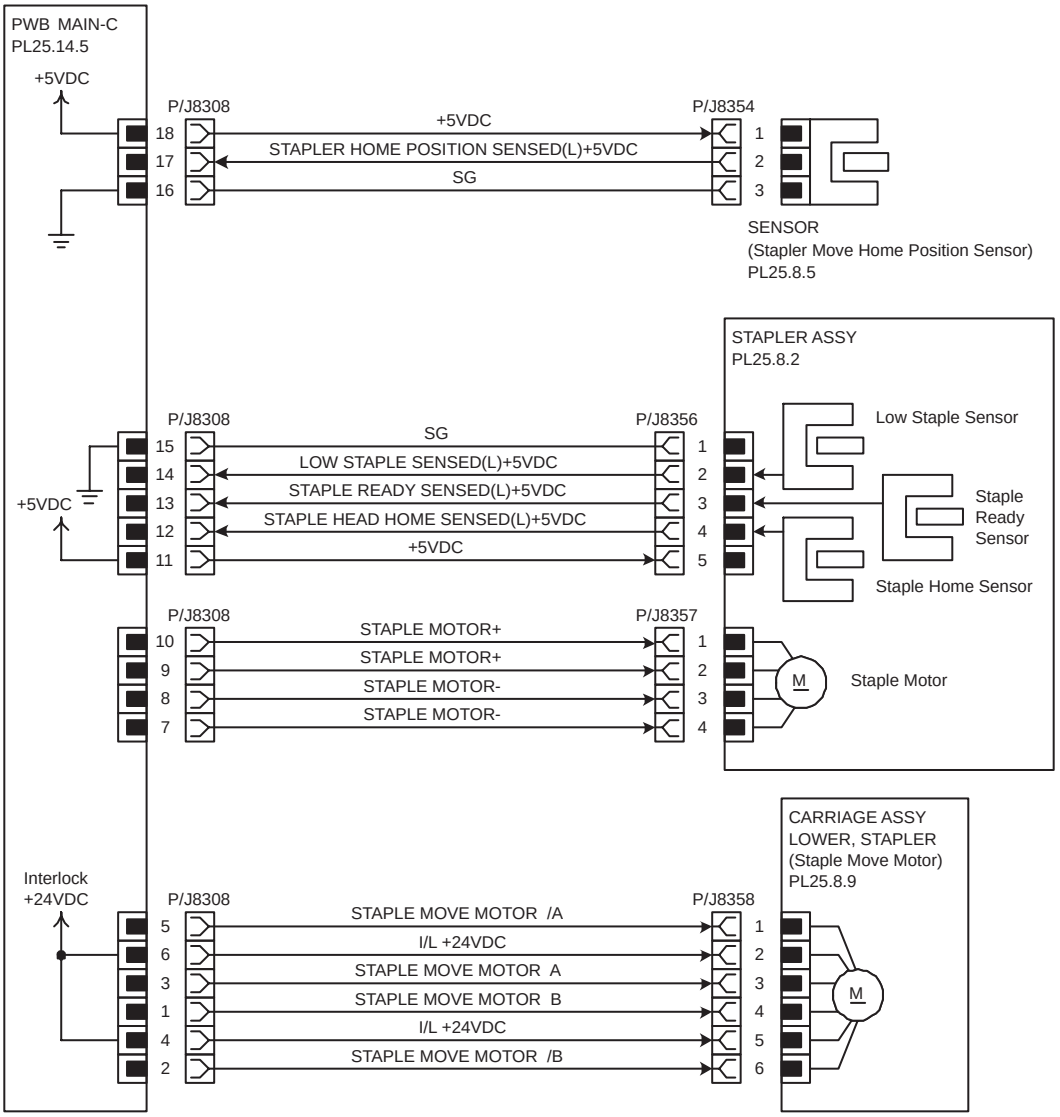
Signal line name	Description
EJECT CLAMP MOTOR CCW ON(H)+24VDC	CCW direction rotation ON/OFF control signal of MOTOR ASSY-DC (Eject Clamp Motor) (Eject Clamp UP/DOWN)
EJECT CLAMP MOTOR CW ON(H)+24VDC	CW direction rotation ON/OFF control signal of MOTOR ASSY-DC (Eject Clamp Motor) (Reverse)
SET CLAMP CLUTCH ON(L)+24VDC	CLUTCH Z34(Set Clamp Clutch) ON/OFF control signal
SUB PADDLE SOLENOID ON(L)+24VDC	SOLENOID ASSY (Sub Paddle Solenoid) ON/ OFF control signal
TRANSPORT GATE SOLENOID PUSH(L)+24VDC	BRACKET ASSY SOL (Transport Gate Solenoid) Push signal (Stacker side)
TRANSPORT GATE SOLENOID PULL(L)+24VDC	BRACKET ASSY SOL (Transport Gate Solenoid) Pull signal (SCT side)
BUFFER GATE SOLENOID PUSH(L)+24VDC	BRACKET ASSY SOL (Buffer Gate Solenoid) Push signal (Stacker side)
BUFFER GATE SOLENOID PULL(L)+24VDC	BRACKET ASSY SOL (Buffer Gate Solenoid) ÇÃ Pull signal (Buffer side)
ELEVATOR MOTOR DOWN(H)+24VDC	Stack Tray downward direction ON/OFF control signal of MOTOR ASSY-DC (Elevator Motor)
ELEVATOR MOTOR UP(H)+24VDC	Stack Tray rise direction ON/OFF control signal of MOTOR ASSY-DC (Elevator Motor)

7 Tamper



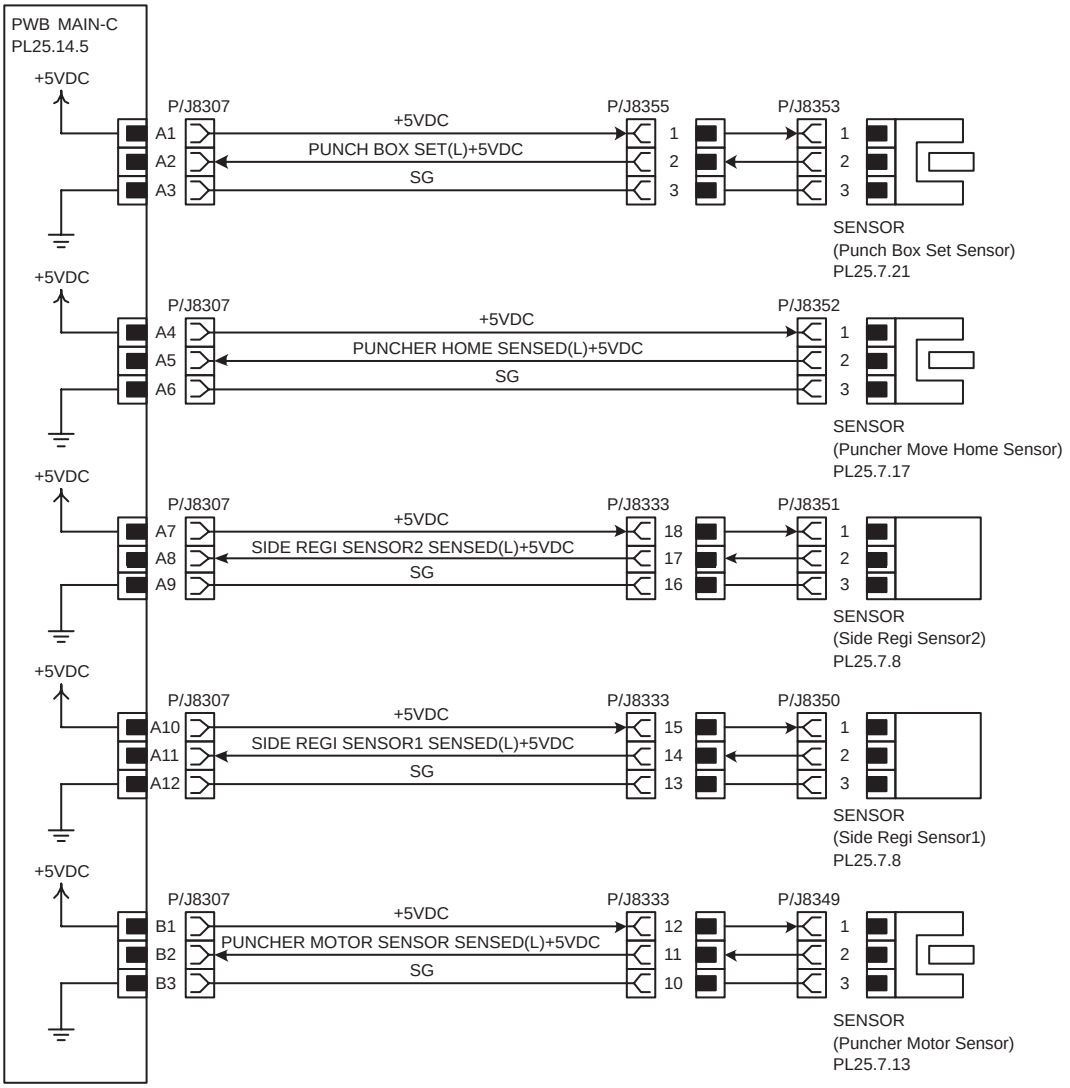
Signal line name	Description
REAR TAMPER MOTOR A, REAR TAMPER MOTOR /A, REAR TAMPER MOTOR B, REAR TAMPER MOTOR /B	MOTOR ASSY (Rear Tamper Motor) exciting signal
FRONT TAMPER MOTOR A, FRONT TAMPER MOTOR /A, FRONT TAMPER MOTOR B, FRONT TAMPER MOTOR /B	MOTOR ASSY (Front Tamper Motor) exciting signal
REAR TAMPER HOME SENSED(L)+5VDC	Rear Tamper home position detection signal by SENSOR (Rear Tamper Home Sensor)
FRONT TAMPER HOME SENSED(L)+5VDC	Front Tamper home position detection signal by SENSOR (Front Tamper Home Sensor)
COMPILER TRAY PAPER SENSED(L)+5VDC	Paper detection signal in Compiler Tray by SENSOR (Compiler Tray No Paper Sensor)

8 Stapler



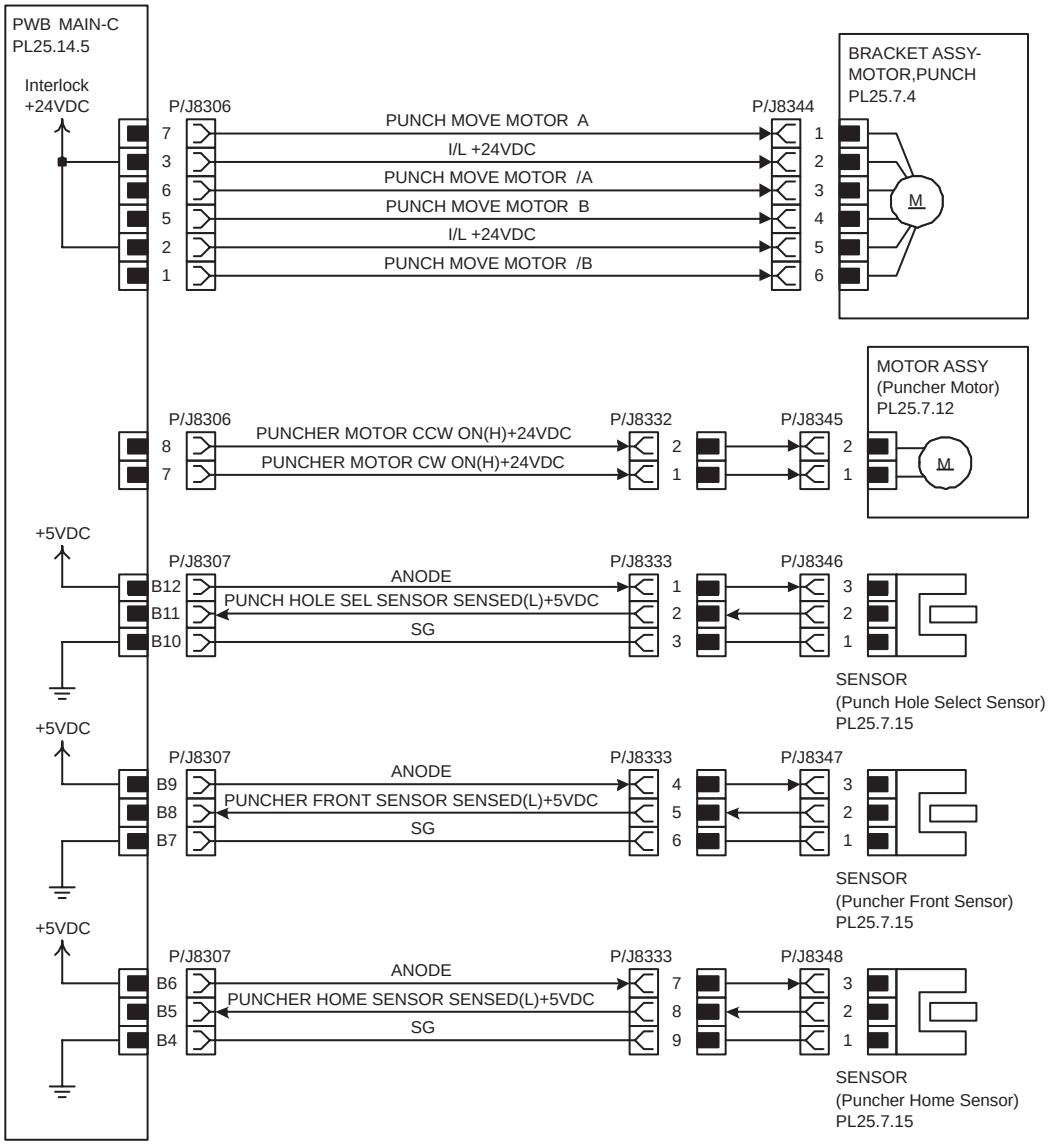
Signal line name	Description
STAPLER HOME POSITION SENSED(L)+5VDC	Stapler home position detection signal by SENSOR (Stapler Move Home Position Sensor)
LOW STAPLE SENSED(L)+5VDC	Detection signal of the needle of Stapler by Low Staple Sensor in STAPLER ASSY.
STAPLE READY SENSED(L)+5VDC	Detection signal of the Ready state of Stapler by Staple Ready Sensor in STAPLER ASSY
STAPLE HEAD HOME SENSED(L)+5VDC	Stapler Head home position detection signal by Staple Home Sensor in STAPLER ASSY
STAPLE MOTOR +, STAPLE MOTOR -	exciting signal of Staple Motor in STAPLER ASSY
STAPLE MOVE MOTOR A, STAPLE MOVE MOTOR /A, STAPLE MOVE MOTOR B, STAPLE MOVE MOTOR /B	CARRIAGE ASSY LOWER, STAPLER (Staple Move Motor) exciting signal

9 Puncher1



Signal line name	Description
PUNCH BOX SET(L)+5VDC	Punch Box wearing direction signal by SENSOR (Punch Box Set Sensor)
PUNCHER HOME SENSED(L)+5VDC	Puncher home position detection signal by SENSOR (Puncher Move Home Sensor)
SIDE REGI SENSOR2 SENSED(L)+5VDC	Paper detection signal by SENSOR (Side Regi Sensor2)
SIDE REGI SENSOR1 SENSED(L)+5VDC	Paper detection signal by SENSOR (Side Regi Sensor1)
PUNCHER MOTOR SENSOR SENSED(L)+5VDC	Number-of-rotations detection signal of Puncher Motor by SENSOR (Puncher Motor Sensor)

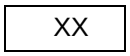
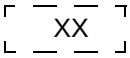
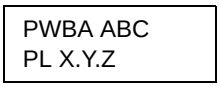
10 Puncher2

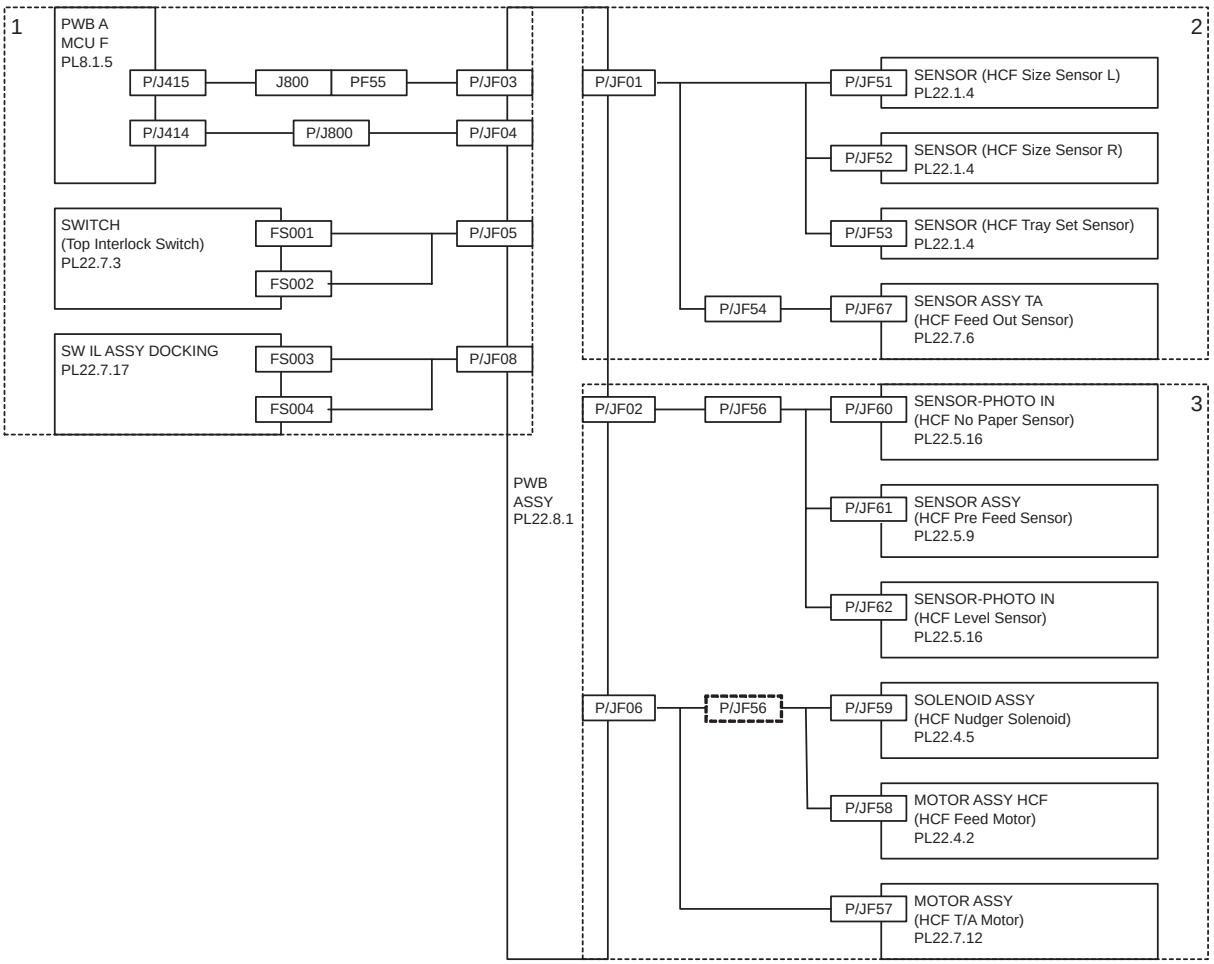


Signal line name	Description
PUNCH MOVE MOTOR A, PUNCH MOVE MOTOR /A, PUNCH MOVE MOTOR B, PUNCH MOVE MOTOR /B	BRACKET ASSY-MOTOR,PUNCH exciting signal
PUNCHER MOTOR CCW ON(H)+24VDC	CCW direction rotation ON/OFF control signal of MOTOR ASSY (Puncher Motor) (It moves to the Puncher Rear side)
PUNCHER MOTOR CW ON(H)+24VDC	CW direction rotation ON/OFF control signal of MOTOR ASSY (Puncher Motor) (It moves to the Puncher Front side)
PUNCH HOLE SEL SENSOR SENSED(L)+5VDC	2 holes / 3 hole change detection signal by SENSOR (Punch Hole Select Sensor).
PUNCHER FRONT SENSOR SENSED(L)+5VDC	Puncher ÇÃ Cam Plate of Puncher Front Position of SENSOR (Puncher Front Sensor)
PUNCHER HOME SENSOR SENSED(L)+5VDC	Cam Plate of Puncher home position detection signal by SENSOR (Puncher Home Sensor)

General Wiring Diagram

The following describes the legend of the general wiring diagram shown on the next page.

Symbols	Description
	Denotes a connection between parts with harnesses and wires.
	A frame not having parts name inside denotes the connector (P/J). Numeric value inside implies the connector number.
	A frame of broken line denotes the connector (P/J) written in several places separately. Numeric value inside implies the connector number.
	A frame having parts name inside denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	A frame of dotted line denotes the section in "2. Wiring Diagram between Parts", and numeric value implies the section number.



Wiring Diagram between Parts

Configuration

The wiring diagram is separated into 3 sections to show detailed connection between parts.

- 1 Switch
  - Connection between PWB ASSY and PWB A MCU F
  - Connection between PWB ASSY and SW IL ASSY DOCKING
  - Connection between PWB ASSY and SWITCH (Top Interlock Switch)

- 2 Sensor
  - Connection between PWB ASSY and SENSOR (HCF Size Sensor L)
  - Connection between PWB ASSY and SENSOR (HCF Size Sensor R)
  - Connection between PWB ASSY and SENSOR (HCF Tray Set Sensor)
  - Connection between PWB ASSY and SENSOR ASSY TA (HCF Feed Out Sensor)

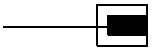
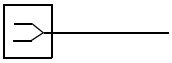
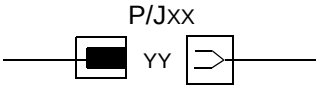
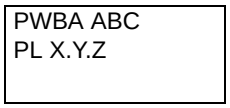
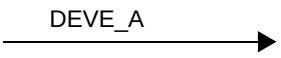
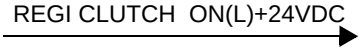
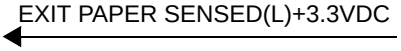
- 3 Sensor/Motor/Solenoid
  - Connection between PWB ASSY and MOTOR ASSY HCF (HCF Feed Motor)
  - Connection between PWB ASSY and MOTOR ASSY HCF (HCF T/A Motor)
  - Connection between PWB ASSY and SOLENOID ASSY (HCF Nudger Solenoid)
  - Connection between PWB ASSY and SENSOR-PHOTO IN (HCF Level Sensor)

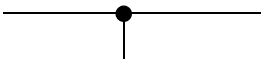
- Connection between PWB ASSY and SENSOR ASSY (HCF Pre Feed Sensor)
- Connection between PWB ASSY and SENSOR-PHOTO IN (HCF No Paper Sensor)

Notes on Using the Wiring Diagram between Parts

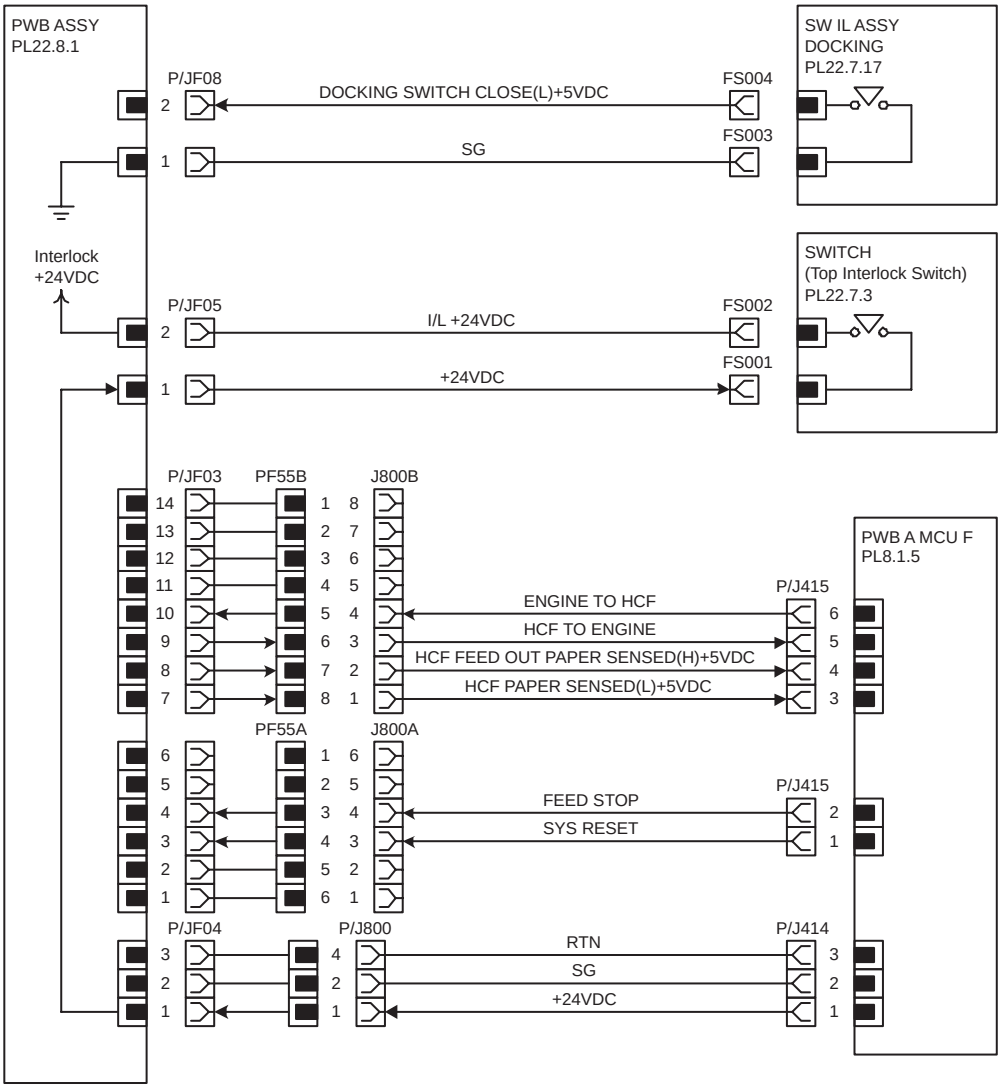
The following describes the legend of the wiring diagrams between parts shown on the following pages.

Note that the description of general symbols is omitted.

Symbols	Description
	Denotes a plug.
	Denotes a jack.
	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.
	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	Denotes functional parts attached with functional parts name.
	Denotes the control and its outline in PWB.
	Denotes a connection between parts with harnesses or wires, attached with signal name/contents.
	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes the function, and logic value of the signal when the function operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.

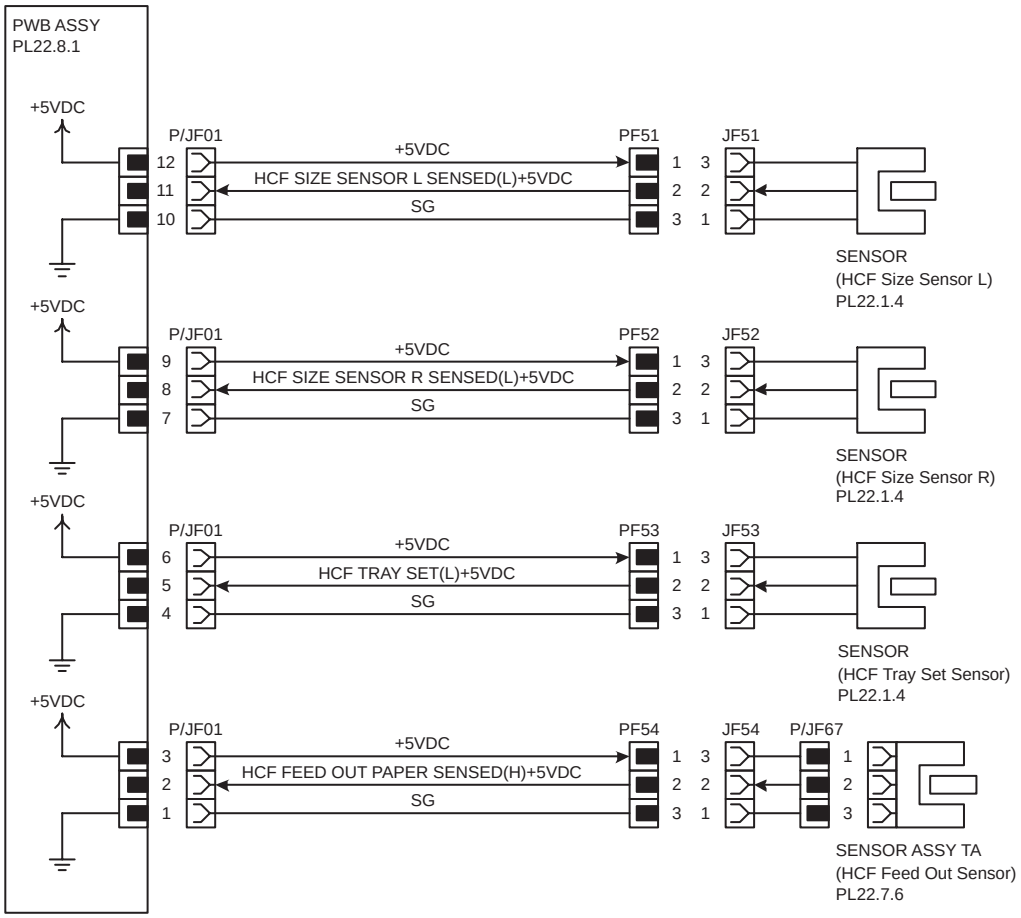
Symbols	Description
	Denotes a connection between wires.
I/L +24VDC	Denotes DC voltage when the interlock switch in HNB MCU WITH CPU turns on
+5VDC +3.3VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.
RTN	Denotes the return.

1 Switch



Signal line name	Description
DOCKING SWITCH CLOSE(L)+5VDC	wearing detection signal of HCF and Engine by SW IL ASSY DOCKING Åi Low ÅF wearing Åj
ENGINE TO HCF	Communication signal of PWB ASSY(HCF) and PWB A MCU F (Engine) (Engine->HCF)
HCF TO ENGINE	Communication signal of PWB ASSY(HCF) and PWB A MCU F (Engine) (HCF->Engine)
HCF FEED OUT PAPER SENSED(H)+5VDC	Paper detection signal by HCF Feed Out Sensor in transport section (HCF->Engine)
HCF PAPER SENSED(L)+5VDC	Paper detection signal in HCF Tray of HCF No Paper Sensor (HCF->Engine)
FEED STOP	Feed Stop signal to HCF (Engine->HCF)
SYS RESET	System Reset signal to HCF (Engine->HCF)

2 Sensor

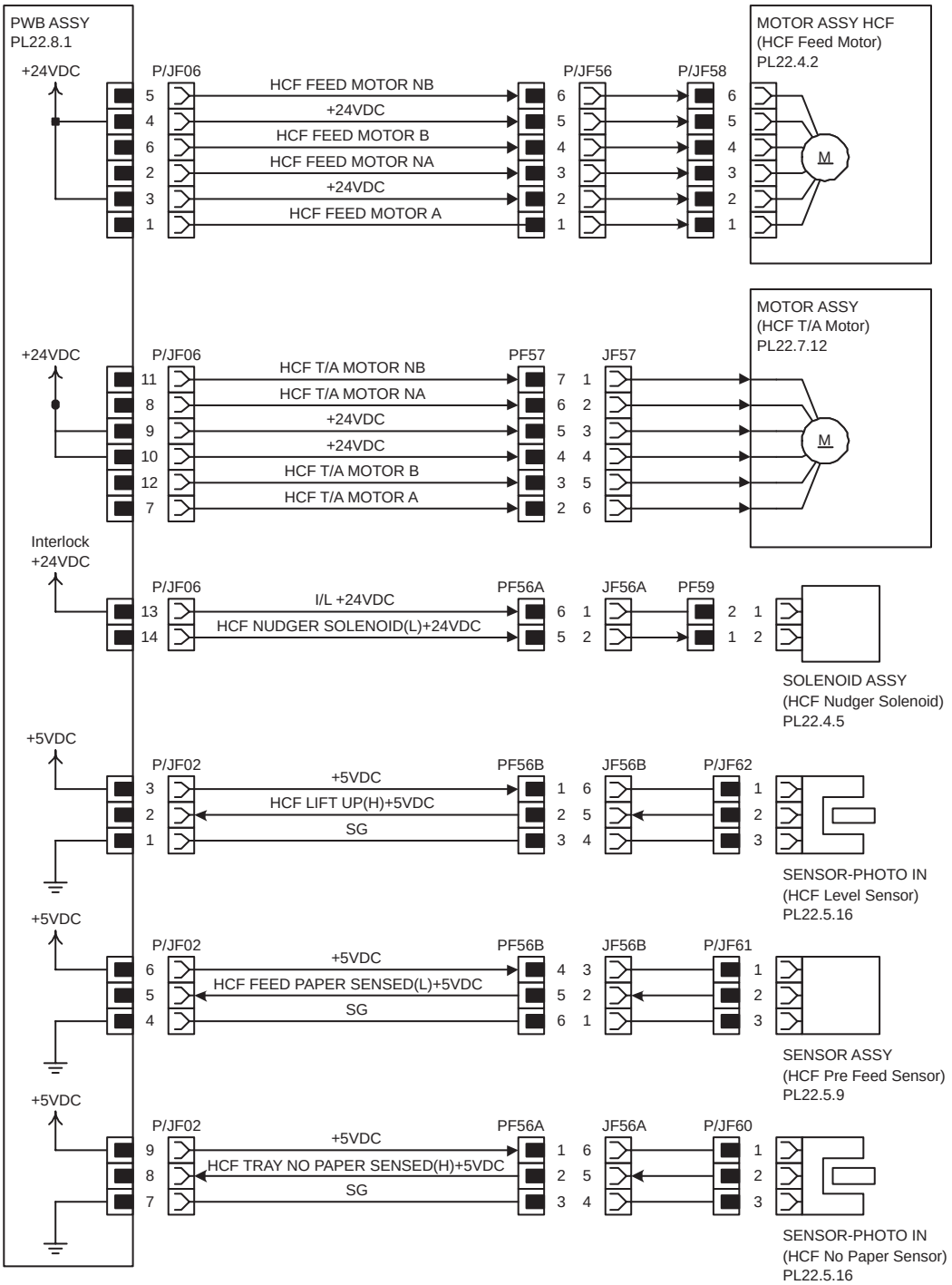

PWB ASSY
PL22.8.1
+5VDC
P/JF01
12
11
10
+5VDC
HCF SIZE SENSOR L SENSED(L)+5VDC
SG
PF51
JF51
SENSOR
(HCF Size Sensor L)
PL22.1.4
+5VDC
P/JF01
9
8
7
+5VDC
HCF SIZE SENSOR R SENSED(L)+5VDC
SG
PF52
JF52
SENSOR
(HCF Size Sensor R)
PL22.1.4
+5VDC
P/JF01
6
5
4
+5VDC
HCF TRAY SET(L)+5VDC
SG
PF53
JF53
SENSOR
(HCF Tray Set Sensor)
PL22.1.4
+5VDC
P/JF01
3
2
1
+5VDC
HCF FEED OUT PAPER SENSED(H)+5VDC
SG
PF54
JF54
P/JF67
SENSOR ASSY TA
(HCF Feed Out Sensor)
PL22.7.6

Signal line name	Description
HCF SIZE SENSOR L SENSED(L)+5VDC	HCF Size Sensor L ON/OFF detection signal
HCF SIZE SENSOR R SENSED(L)+5VDC	HCF Size Sensor R ON/OFF detection signal
HCF TRAY SET(L)+5VDC	HCF Tray set signal by HCF Tray Set Sensor
HCF FEED OUT PAPER SENSED(H)+5VDC	Paper detection signal by HCF Feed Out Sensor in transport section

- Paper size detection
  - The ON/OFF pattern of HCF SIZE SENSOR L and HCF SIZE SENSOR R and the relation of paper size are as follows.

Paper Size	SENSOR L	SENSOR R
B5 LEF / 7.25"Å~10.5" LEF	OFF	OFF
8.5"Å~11" LEF	ON	OFF
A4 LEF	OFF	ON

3 Sensor/Motor/Solenoid

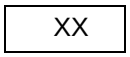
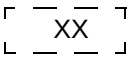
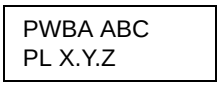

PWB ASSY
PL22.8.1
+24VDC
P/JF06
HCF FEED MOTOR NB
+24VDC
HCF FEED MOTOR B
HCF FEED MOTOR NA
+24VDC
HCF FEED MOTOR A
P/JF56
P/JF58
MOTOR ASSY HCF
(HCF Feed Motor)
PL22.4.2
M
+24VDC
P/JF06
HCF T/A MOTOR NB
HCF T/A MOTOR NA
+24VDC
+24VDC
HCF T/A MOTOR B
HCF T/A MOTOR A
PF57
JF57
MOTOR ASSY
(HCF T/A Motor)
PL22.7.12
M
Interlock
+24VDC
P/JF06
I/L +24VDC
HCF NUDGER SOLENOID(L)+24VDC
PF56A
JF56A
PF59
SOLENOID ASSY
(HCF Nudger Solenoid)
PL22.4.5
+5VDC
P/JF02
+5VDC
HCF LIFT UP(H)+5VDC
SG
PF56B
JF56B
P/JF62
SENSOR-PHOTO IN
(HCF Level Sensor)
PL22.5.16
+5VDC
P/JF02
+5VDC
HCF FEED PAPER SENSED(L)+5VDC
SG
PF56B
JF56B
P/JF61
SENSOR ASSY
(HCF Pre Feed Sensor)
PL22.5.9
+5VDC
P/JF02
+5VDC
HCF TRAY NO PAPER SENSED(H)+5VDC
SG
PF56A
JF56A
P/JF60
SENSOR-PHOTO IN
(HCF No Paper Sensor)
PL22.5.16

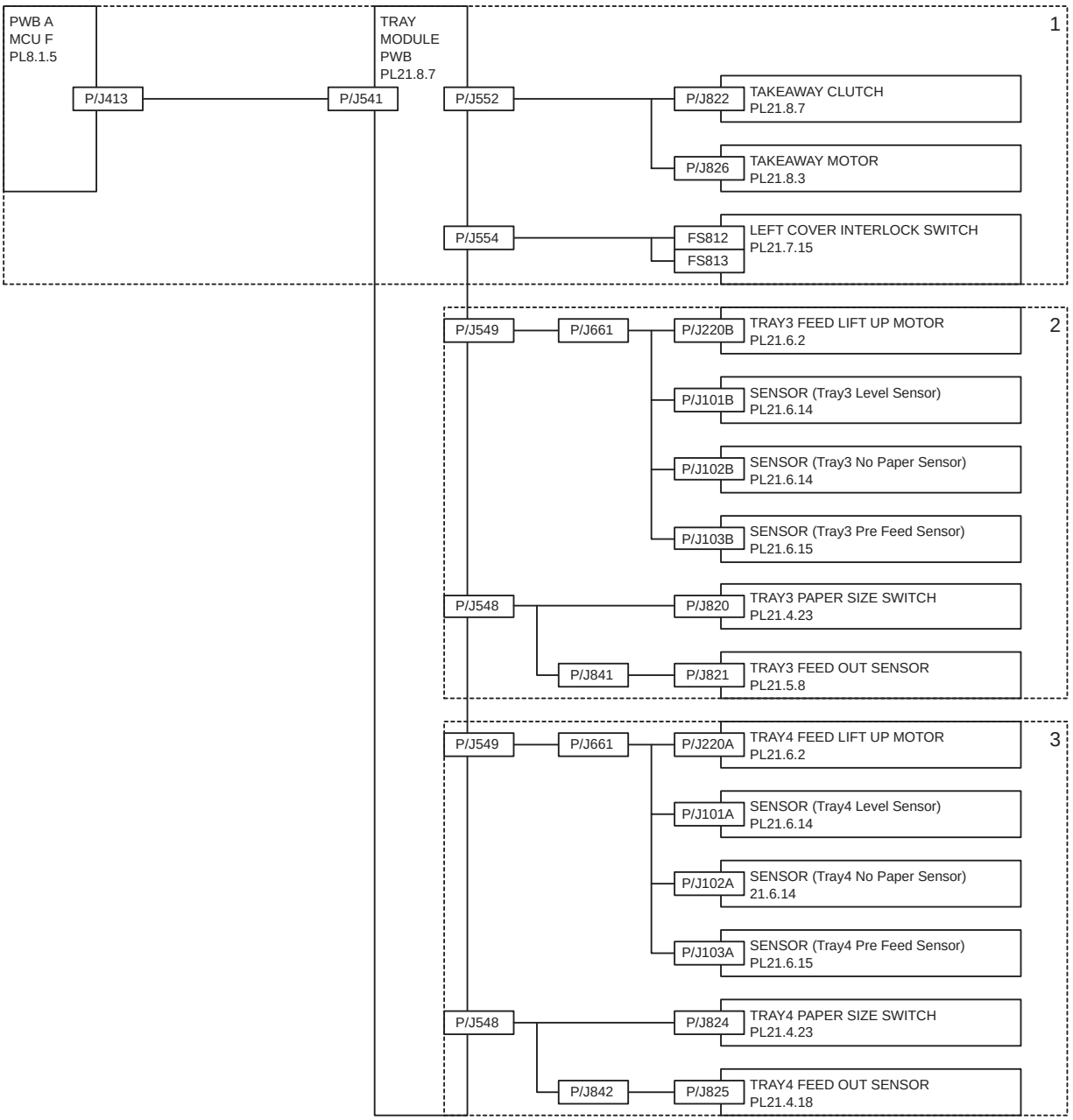
Signal line name	Description
HCF FEED MOTOR A, HCF FEED MOTOR NA, HCF FEED MOTOR B, HCF FEED MOTOR NB,	HCF Feed Motor exciting signal
HCF T/A MOTOR A, HCF T/A MOTOR NA, HCF T/A MOTOR B, HCF T/A MOTOR NB,	HCF T/A Motor exciting signal
HCF NUDGER SOLENOID(L)+24VDC	HCF Nudger Solenoid ON/OFF control signal
HCF LIFT UP(H)+5VDC	Rise (paper feed possible level) detection signal of plate in HCF by HCF Level Sensor
HCF FEED PAPER SENSED(L)+5VDC	Feed paper detection signal from HCF by HCF Pre Feed Sensor
HCF TRAY NO PAPER SENSED(H)+5VDC	Paper detection signal in HCF Tray by HCF No Paper Sensor (High: No paper)

Tandem Tray

General Wiring Diagram

The following describes the legend of the general wiring diagram shown on the next page.

Symbols	Description
	Denotes a connection between parts with harnesses and wires.
	A frame not having parts name inside denotes the connector (P/J). Numeric value inside implies the connector number.
	A frame of broken line denotes the connector (P/J) written in several places separately. Numeric value inside implies the connector number.
	A frame having parts name inside denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	A frame of dotted line denotes the section in "2. Wiring Diagram between Parts", and numeric value implies the section number.



Wiring Diagram between Parts

Configuration

The wiring diagram is separated into 3 sections to show detailed connection between parts.

- 1 Drive
  - Connection between TRAY MODULE PWB and CLUTCH (Takeaway Clutch)
  - Connection between TRAY MODULE PWB and MAIN MOTOR
  - Connection between TRAY MODULE PWB and LEFT COVER INTERLOCK SWITCH
  - Connection between TRAY MODULE PWB and PWB A MCU F

- 2 Tray3
  - Connection between TRAY MODULE PWB and TRAY3 FEED LIFT UP MOTOR

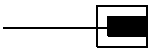
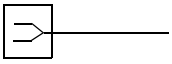
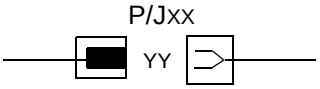
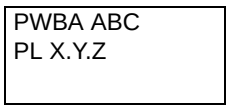
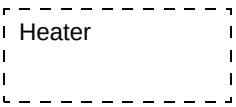
- Connection between TRAY MODULE PWB and SENSOR (Tray3 Level Sensor)
- Connection between TRAY MODULE PWB and SENSOR (Tray3 No Paper Sensor)
- Connection between TRAY MODULE PWB and SENSOR (Tray3 Pre Feed Sensor)
- Connection between TRAY MODULE PWB and TRAY3 PAPER SIZE SWITCH
- Connection between TRAY MODULE PWB and TRAY3 FEED OUT SENSOR

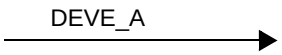
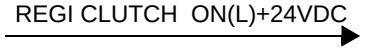
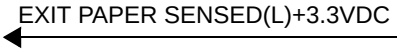
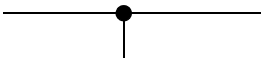
• 3 Tray4
- Connection between TRAY MODULE PWB and TRAY4 FEED LIFT UP MOTOR
- Connection between TRAY MODULE PWB and SENSOR (Tray4 Level Sensor)
- Connection between TRAY MODULE PWB and SENSOR (Tray4 No Paper Sensor)
- Connection between TRAY MODULE PWB and SENSOR (Tray4 Pre Feed Sensor)
- Connection between TRAY MODULE PWB and TRAY4 PAPER SIZE SWITCH
- Connection between TRAY MODULE PWB and TRAY4 FEED OUT SENSOR

Notes on Using the Wiring Diagram between Parts

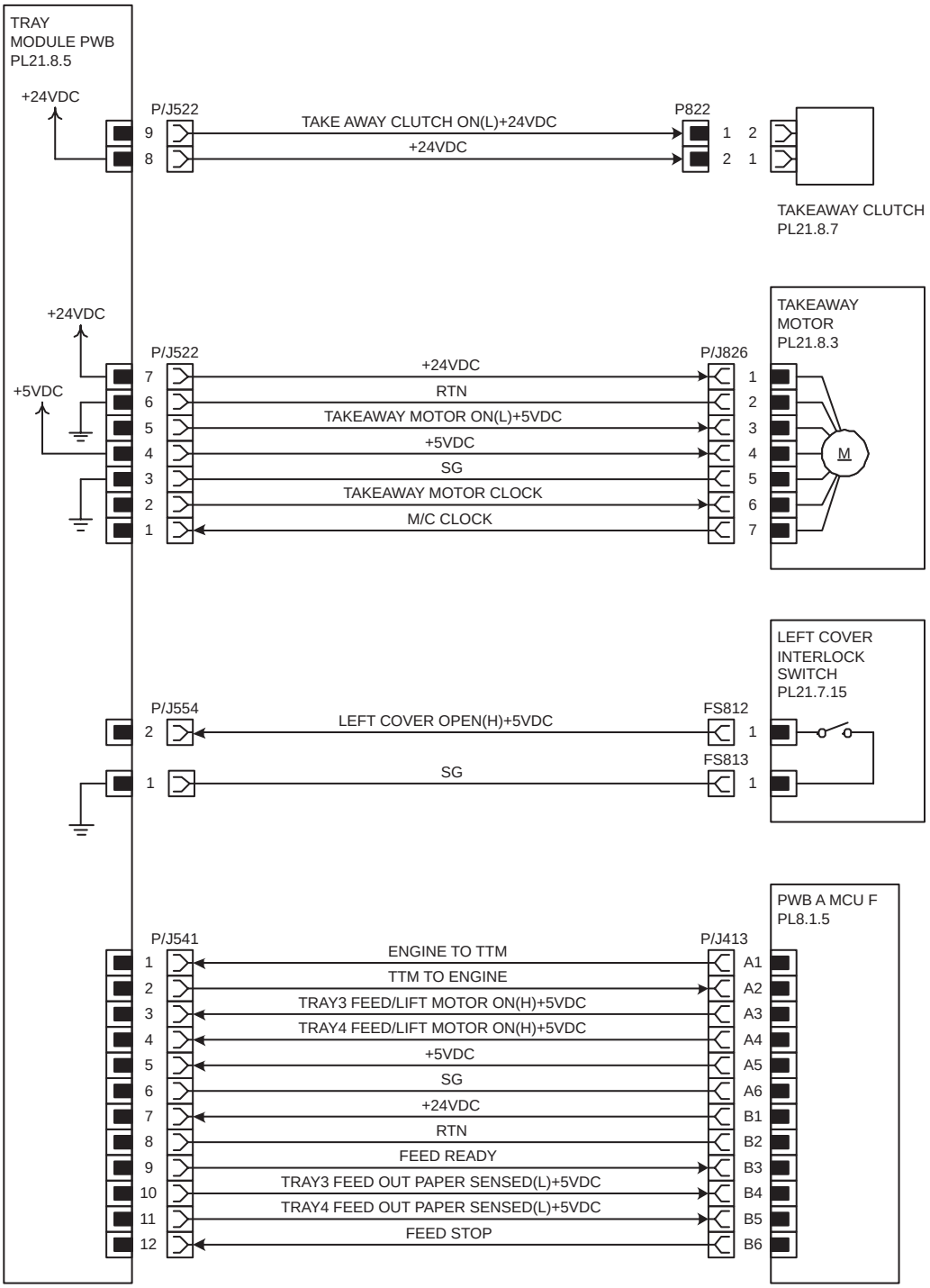
The following describes the legend of the wiring diagrams between parts shown on the following pages.

Note that the description of general symbols is omitted.

Symbols	Description
	Denotes a plug.
	Denotes a jack.
	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.
	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	Denotes functional parts attached with functional parts name.
	Denotes the control and its outline in PWB.

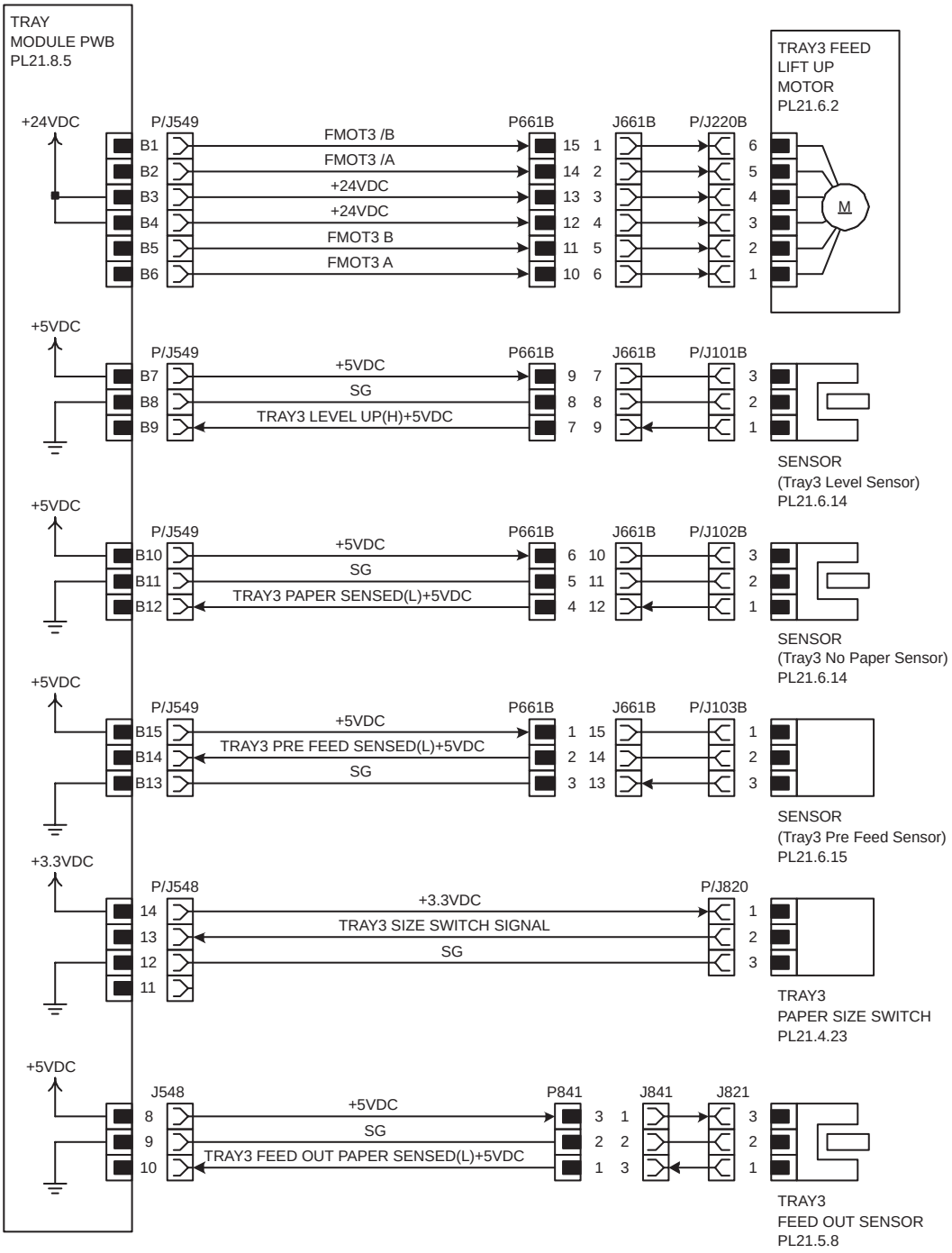
Symbols	Description
	Denotes a connection between parts with harnesses or wires, attached with signal name/contents.
	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes the function, and logic value of the signal when the function operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes a connection between wires.
I/L +24VDC	Denotes DC voltage when the interlock switch in HNB MCU WITH CPU turns on
+5VDC +3.3VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.
RTN	Denotes the return.

1 Drive


TRAY
MODULE PWB
PL21.8.5
+24VDC
P/J522
9
8
TAKE AWAY CLUTCH ON(L)+24VDC
+24VDC
P822
1 2
2 1
TAKEAWAY CLUTCH
PL21.8.7
+24VDC
+5VDC
P/J522
7
6
5
4
3
2
1
+24VDC
RTN
TAKEAWAY MOTOR ON(L)+5VDC
+5VDC
SG
TAKEAWAY MOTOR CLOCK
M/C CLOCK
P/J826
1
2
3
4
5
6
7
TAKEAWAY
MOTOR
PL21.8.3
M
LEFT COVER
INTERLOCK
SWITCH
PL21.7.15
P/J554
2
1
LEFT COVER OPEN(H)+5VDC
SG
FS812
1
FS813
1
PWB A MCU F
PL8.1.5
P/J541
1
2
3
4
5
6
7
8
9
10
11
12
ENGINE TO TTM
TTM TO ENGINE
TRAY3 FEED/LIFT MOTOR ON(H)+5VDC
TRAY4 FEED/LIFT MOTOR ON(H)+5VDC
+5VDC
SG
+24VDC
RTN
FEED READY
TRAY3 FEED OUT PAPER SENSED(L)+5VDC
TRAY4 FEED OUT PAPER SENSED(L)+5VDC
FEED STOP
P/J413
A1
A2
A3
A4
A5
A6
B1
B2
B3
B4
B5
B6

Signal line name	Description
TAKEAWAY CLUTCH ON(L)+24VDC	TAKEAWAY CLUTCH ON/OFF control signal
TAKEAWAY MOTOR ON(L)+5VDC	TAKEAWAY MOTOR ON/OFF control signal
TAKEAWAY MOTOR CLOCK	Clock signal to TAKEAWAY MOTOR
M/C CLOCK	Clock signal from TAKEAWAY MOTOR
LEFT COVER OPEN(H)+5VDC	LEFT COVER open/close detection signal by LEFT COVER INTERLOCK SWITCH
ENGINE TO TTM	Communication signal of PWB A MCU F (Engine) and TRAY MODULE PWB (TTM) (Engine->TTM)
TTM TO ENGINE	Communication signal of TRAY MODULE PWB (TTM) and PWB A MCU F (Engine) (TTM->Engine)
TRAY3 FEED/LIFT MOTOR ON(H)+5VDC	TRAY3 FEED LIFT UP MOTOR ON/OFF control signal (Engine->TTM)
TRAY4 FEED/LIFT MOTOR ON(H)+5VDC	TRAY4 FEED LIFT UP MOTOR ON/OFF control signal (Engine->TTM)
FEED READY	Feed ready signal from TTM (TTM->Engine)
TRAY3 FEED OUT PAPER SENSED(L)+5VDC	Paper detection signal by TRAY3 FEED OUT SENSOR in transport section (TTM->Engine)
TRAY4 FEED OUT PAPER SENSED(L)+5VDC	Paper detection signal by TRAY4 FEED OUT SENSOR in transport section (TTM->Engine)
FEED STOP	Feed stop signal to TTM (Engine->TTM)

2 Tray3


TRAY
MODULE PWB
PL21.8.5
TRAY3 FEED
LIFT UP
MOTOR
PL21.6.2
+24VDC
P/J549
P661B
J661B
P/J220B
B1
B2
B3
B4
B5
B6
FMOT3 /B
FMOT3 /A
+24VDC
+24VDC
FMOT3 B
FMOT3 A
M
+5VDC
P/J101B
B7
B8
B9
+5VDC
SG
TRAY3 LEVEL UP(H)+5VDC
SENSOR
(Tray3 Level Sensor)
PL21.6.14
P/J102B
B10
B11
B12
TRAY3 PAPER SENSED(L)+5VDC
SENSOR
(Tray3 No Paper Sensor)
PL21.6.14
P/J103B
B15
B14
B13
TRAY3 PRE FEED SENSED(L)+5VDC
SENSOR
(Tray3 Pre Feed Sensor)
PL21.6.15
+3.3VDC
P/J548
P/J820
14
13
12
11
+3.3VDC
TRAY3 SIZE SWITCH SIGNAL
SG
TRAY3
PAPER SIZE SWITCH
PL21.4.23
J548
P841
J841
J821
8
9
10
TRAY3 FEED OUT PAPER SENSED(L)+5VDC
TRAY3
FEED OUT SENSOR
PL21.5.8

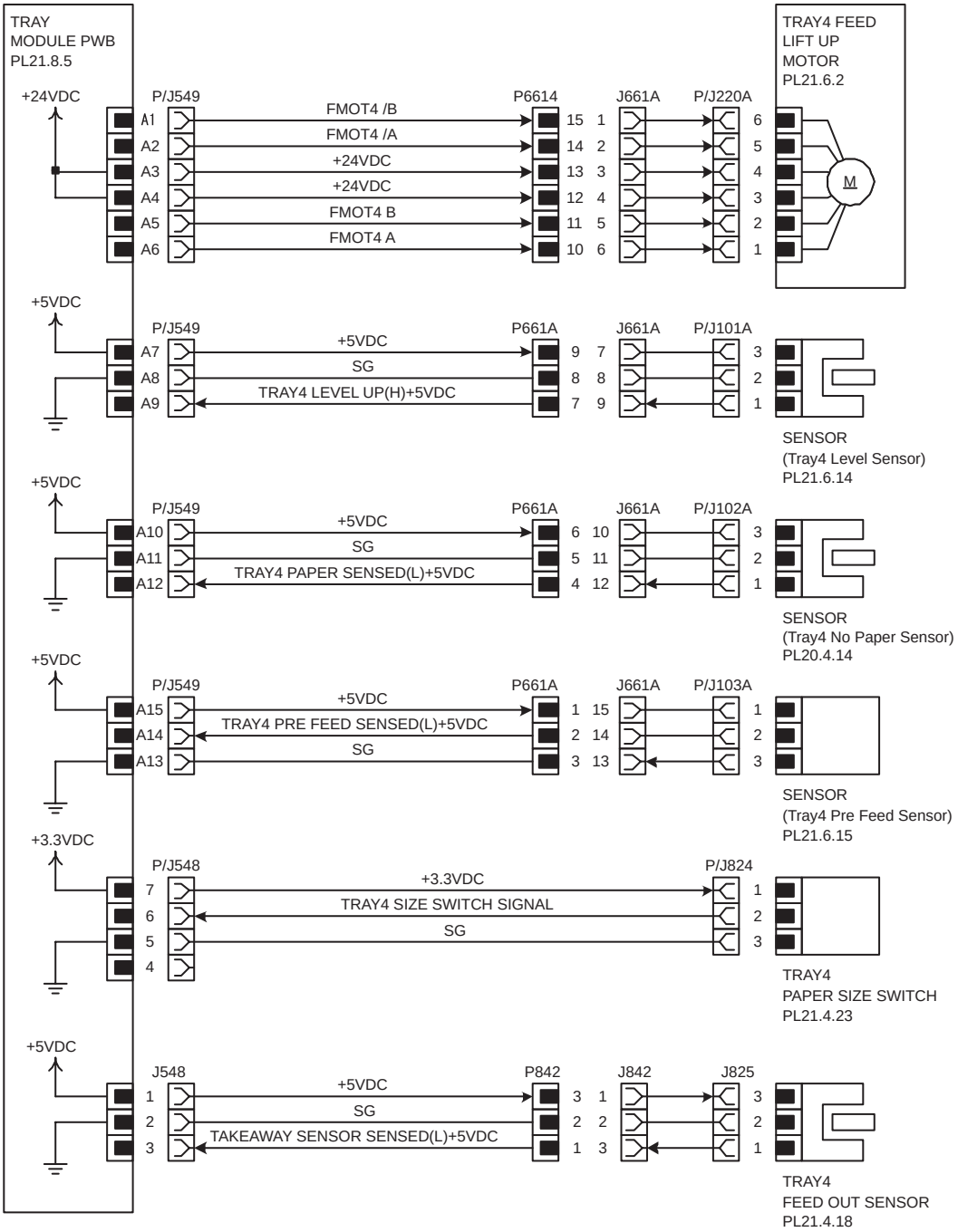
Signal line name	Description
FMOT3 A, FMOT3 B, FMOT3 /A, FMOT3 /B	TRAY3 FEED LIFT UP MOTOR exciting signal
TRAY3 LEVEL UP(H)+5VDC	Rise (paper feed possible level) detection signal of plate in Tray3 by SENSOR (Tray3 Level Sensor)
TRAY3 PAPER SENSED(L)+5VDC	Paper detection signal in Tray3 of SENSOR (Tray3 No Paper Sensor)
TRAY3 PRE FEED SENSED(L)+5VDC	Feed paper detection signal from Tray3 by SENSOR (Tray3 Pre Feed Sensor)
TRAY3 SIZE SWITCH SIGNAL	Paper size detection signal (analog value) of TRAY3 PAPER SIZE SWITCH
TRAY3 FEED OUT PAPER SENSED(L)+5VDC	Paper detection signal by TRAY3 FEED OUT SENSOR in transport section

Paper size detection

- The ON/OFF pattern of each switch (S1, S2) of TRAY3 PAPER SIZE SWITCH and the relation of paper size and the output voltage of TRAY3 SIZE SWITCH SIGNAL are as follows.

Paper Size	S1	S2	Output Voltage(V)
No Tray	OFF	OFF	3.06Å}0.03
B5 LEF / 7.25"Å~10.5" LEF	OFF	ON	2.61Å}0.03
8.5"Å~11" LEF	ON	OFF	1.41Å}0.03
A4 LEF	ON	ON	1.00Å}0.03

3 Tray4


TRAY
MODULE PWB
PL21.8.5
TRAY4 FEED
LIFT UP
MOTOR
PL21.6.2
+24VDC
P/J549
P6614
J661A
P/J220A
A1
A2
A3
A4
A5
A6
FMOT4 /B
FMOT4 /A
+24VDC
+24VDC
FMOT4 B
FMOT4 A
M
+5VDC
P/J549
P661A
J661A
P/J101A
A7
A8
A9
+5VDC
SG
TRAY4 LEVEL UP(H)+5VDC
SENSOR
(Tray4 Level Sensor)
PL21.6.14
+5VDC
P/J549
P661A
J661A
P/J102A
A10
A11
A12
+5VDC
SG
TRAY4 PAPER SENSED(L)+5VDC
SENSOR
(Tray4 No Paper Sensor)
PL20.4.14
+5VDC
P/J549
P661A
J661A
P/J103A
A15
A14
A13
+5VDC
TRAY4 PRE FEED SENSED(L)+5VDC
SG
SENSOR
(Tray4 Pre Feed Sensor)
PL21.6.15
+3.3VDC
P/J548
P/J824
7
6
5
4
+3.3VDC
TRAY4 SIZE SWITCH SIGNAL
SG
TRAY4
PAPER SIZE SWITCH
PL21.4.23
+5VDC
J548
P842
J842
J825
1
2
3
+5VDC
SG
TAKEAWAY SENSOR SENSED(L)+5VDC
TRAY4
FEED OUT SENSOR
PL21.4.18

Signal line name	Description
FMOT4 A, FMOT4 B, FMOT4 /A, FMOT4 /B	TRAY4 FEED LIFT UP MOTOR exciting signal
TRAY4 LEVEL UP(H)+5VDC	Rise (paper feed possible level) detection signal of plate in Tray4 by SENSOR (Tray4 Level Sensor)
TRAY4 PAPER SENSED(L)+5VDC	Paper detection signal in Tray4 of SENSOR (Tray4 No Paper Sensor)
TRAY4 PRE FEED SENSED(L)+5VDC	Feed paper detection signal from Tray4 by SENSOR (Tray4 Pre Feed Sensor)
TRAY4 SIZE SWITCH SIGNAL	Paper size detection signal (analog value) of TRAY4 PAPER SIZE SWITCH
TRAY4 FEED OUT PAPER SENSED(L)+5VDC	Paper detection signal by TRAY4 FEED OUT SENSOR in transport section

Paper size detection

- The ON/OFF pattern of each switch (S1, S2) of TRAY4 PAPER SIZE SWITCH and the relation of paper size and the output voltage of TRAY4 SIZE SWITCH SIGNAL are as follows.

Paper Size	S1	S2	Output Voltage(V)
No Tray	OFF	OFF	3.06Å}0.03
B5 LEF / 7.25"Å~10.5" LEF	OFF	ON	2.61Å}0.03
8.5"Å~11" LEF	ON	OFF	1.41Å}0.03
A4 LEF	ON	ON	1.00Å}0.03

Chapter 4 Plug/Jack

Engine

Connector [P (plug) / J (jack)]

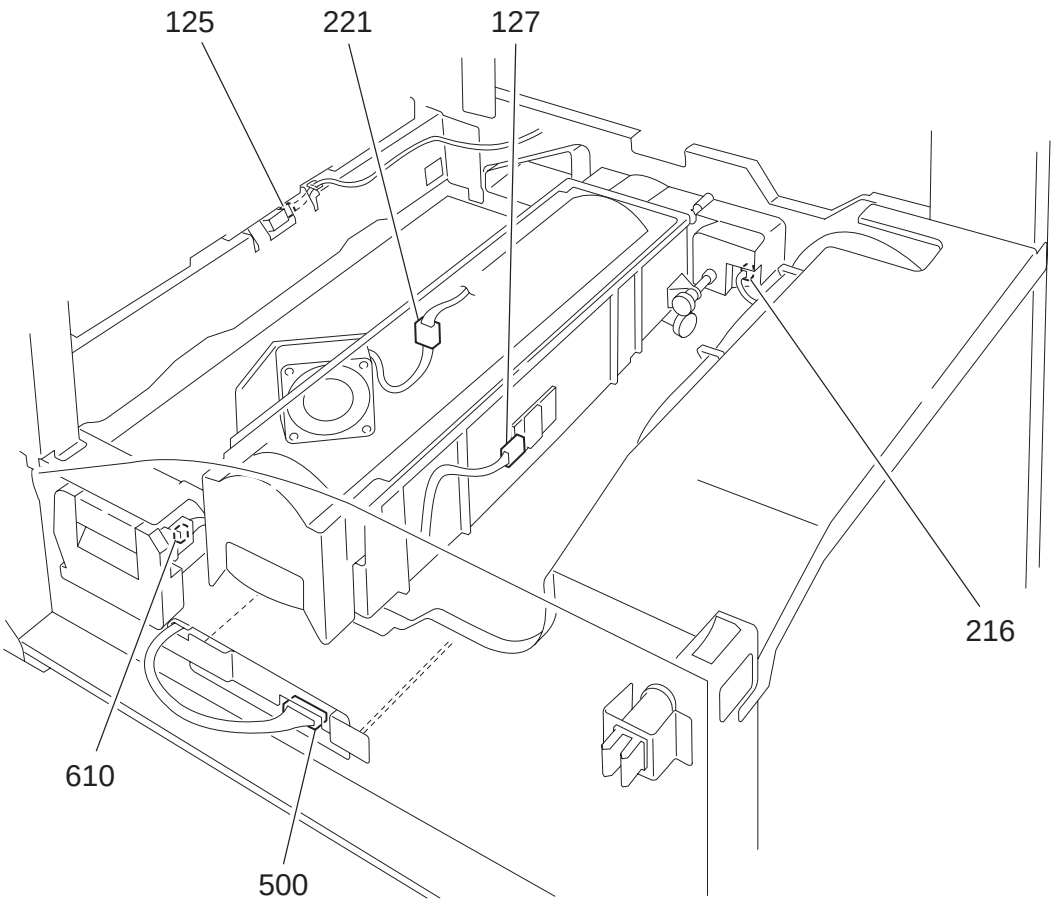
List of P/J

P/J	Coordinates	Remarks
1	D-204	Connects Power Unit and Main Switch Harness Assembly
2	D-243	Connects Power Unit and Finisher Outlet
3	D-245	Connects Power Unit and Heater Harness Assembly
6	E-245	Connects Power Unit and Fuser AC Harness Assembly
7	E-245	Not Connects
11	D-245	Connects Power Unit and GFI
12	D-245	Connects Power Unit and GFI
20	J-141	Connects Main Lamp and Fuser Harness Assembly
21	J-141	Connects Sub Lamp 1 and Fuser Harness Assembly
22	J-141	Connects Sub Lamp 2 and Fuser Harness Assembly
50	F-229	Connects GFI and Power Unit
56	B-238	Connects Main Switch and Main Switch Harness Assembly
57	B-239	Connects Main Switch and Main Switch Harness Assembly
68	B-239	Connects Main Switch and Main Switch Harness Assembly
69	B-239	Connects Main Switch and Main Switch Harness Assembly
72	F-230	Connects GFI and Frame (Earth)
73	G-230	Connects Finisher Outlet and Power Unit
74	G-230	Connects Finisher Outlet and Power Unit
75	G-230	Connects Finisher Outlet and Frame (Earth)
100	G-180	Connects Tray 1 Level Sensor and Tray 1 Feeder Harness Assembly
101	G-180	Connects Tray 1 No Paper Sensor and Tray 1 Feeder Harness Assembly
102	G-180	Connects Tray 2 Level Sensor and Tray 2 Feeder Harness Assembly
103	G-180	Connects Tray 2 No Paper Sensor and Tray 2 Feeder Harness Assembly
104	F-167	Connects REGI Sensor and REGI Harness Assembly
105	F-186	Connects Take Away Sensor and Take Away Sensor Harness Assembly
106	D-183	Connects LHL Switch and PH Harness Assembly
107	D-153	Connects MPF Size Sensor and MPF Sensor Harness Assembly
108	G-152	Connects MPF No Paper Sensor and MPF Harness Assembly
109	D-200	Connects Tray 1 Size Sensor and Size Harness Assembly
110	D-201	Connects Tray 2 Size Sensor and Size Harness Assembly
117	B-134	Connects OCT Home 1 Sensor and OCT Harness Assembly
118	B-134	Connects Full Stack Sensor and OCT Harness Assembly
120	H-196	Connects LH Cover Interlock Switch and PWBA MCU
121	C-244	Connects Front Cover Interlock Switch and INTLK Harness Assembly
125	C-106	Connects Fuser Exit Sensor and PH Harness Assembly
126	D-122	Connects XERO CRU and Crum Harness Assembly
127	F-108	Connects Toner CRU and Crum Harness Assembly
130	E-124	Connects ROS (Scanner) and ROS Harness Assembly
131	B-139	Connects Center STS and FUSER Outlet
132	B-139	Connects 2nd STS and FUSER Outlet
133	B-139	Connects Rear STS and FUSER Outlet

P/J	Coordinates	Remarks
133	H-181	Connects Tray 1 Pre Feed Sensor and Tray 1 Feeder Harness Assembly
134	H-181	Connects Tray 2 Pre Feed Sensor and Tray 2 Feeder Harness Assembly
140	F-123	Connects ROS and ROS Harness Assembly
150	G-166	Connects Hum & Temp Sensor and REGI Harness Assembly
160	F-123	Connects ROS and ROS Harness Assembly
170	F-123	Connects ROS and ROS Harness Assembly
201	E-180	Connects Tray 1 Feed Liftup Motor and Tray 1 Feeder Harness Assembly
202	E-180	Connects Tray 2 Feed Liftup Motor and Tray 2 Feeder Harness Assembly
204	H-199	Connects Takeaway Clutch and PH Harness Assembly
205	D-151	Connects MPF Feed Solenoid and MPF Harness Assembly
206	G-196	Connects No.1 OCT MOT and EXIT Harness Assembly
214	G-198	Connects Drive Assembly and Drive Harness Assembly
215	E-166	Connects REGI Clutch and REGI Harness Assembly
216	H-106	Connects Dispense MOT and LV PWR Harness Assembly
221	E-107	Connects PWBA MCU and CRU Fan
311	B-242	Connects Console Panel and Console Panel Harness Assembly
400	C-214	Connects PWBA MCU and LV PWR Harness Assembly
401	C-214	Connects PWBA MCU and LV PWR Harness Assembly
402	D-212	Connects PWBA MCU and ESS Harness Assembly
403	F-211	Connects PWBA MCU and REGI Harness Assembly
404	E-212	Connects PWBA MCU and XERO Harness Assembly
405	G-212	Connects PWBA MCU and INTLK Harness Assembly
406	D-212	Connects PWBA MCU and ROS Harness Assembly
407	C-212	Connects PWBA MCU and ROS Harness Assembly
408	G-211	Connects PWBA MCU and Drive Harness Assembly
409	G-213	Connects PWBA MCU and Feeder Harness Assembly
410	G-212	Connects PWBA MCU and PH Harness Assembly
411	G-214	Connects PWBA MCU and MPF Harness Assembly
412	C-213	Connects PWBA MCU and Size Harness Assembly
413	D-214	Connects PWBA MCU and Tray Module Harness Assembly
414	F-214	Connects PWBA MCU and HCF Harness Assembly
415	F-214	Connects PWBA MCU and HCF Harness Assembly
416	D-214	Connects PWBA MCU and Output Unit
417	E-214	Connects PWBA MCU and DUP Harness Assembly
419	D-212	Connects PWBA MCU and Crum Harness Assembly
420	C-212	Connects PWBA MCU and LV PWR Harness Assembly
421	C-213	Connects PWBA MCU and LV PWR Harness Assembly
430	H-120	Connects PWBA EXIT and LV PWR Harness Assembly
431	H-120	Connects PWBA EXIT and LV PWR Harness Assembly
432	H-120	Connects PWBA EXIT and EXIT Harness Assembly
433	I-120	Connects PWBA EXIT and EXIT Harness Assembly
434	I-120	Connects PWBA EXIT and EXIT Harness Assembly
500	C-110	Connects HVPS and REGI Harness Assembly
521	I-246	Connects Power Unit and LV PWR Harness Assembly
525	I-247	Connects Power Unit and LV PWR Harness Assembly
526	I-245	Connects Power Unit and LV PWR Harness Assembly
600	A-139	Connects FUSER and FUSER AC Harness Assembly
600	H-196	Connects FUSER Assembly and Fuser Harness Assembly

P/J	Coordinates	Remarks
601	C-183	Connects Tray 1 Feeder Harness Assembly and Feeder Harness Assembly
602	C-184	Connects Tray 2 Feeder Harness Assembly and Feeder Harness Assembly
605	I-199	Connects MPF Assembly and MPF Harness Assembly
606	G-195	Connects EXIT 2 Harness Assembly and EXIT Harness Assembly
607	G-199	Connects Fuser Harness Assembly and PH Harness Assembly
608	C-184	Connects Take Away Sensor Harness Assembly and PH Harness Assembly
609	D-151	Connects MPF Sensor Harness Assembly and MPF Harness Assembly
610	B-109	Connects ATC Sensor and REGI Harness Assembly
613	G-196	Connects OCT Harness Assembly and EXIT Harness Assembly
620	F-122	Connects ROS and ROS Harness Assembly
800	H-200	Connects HCF and HCF Harness Assembly

P/J layout diagram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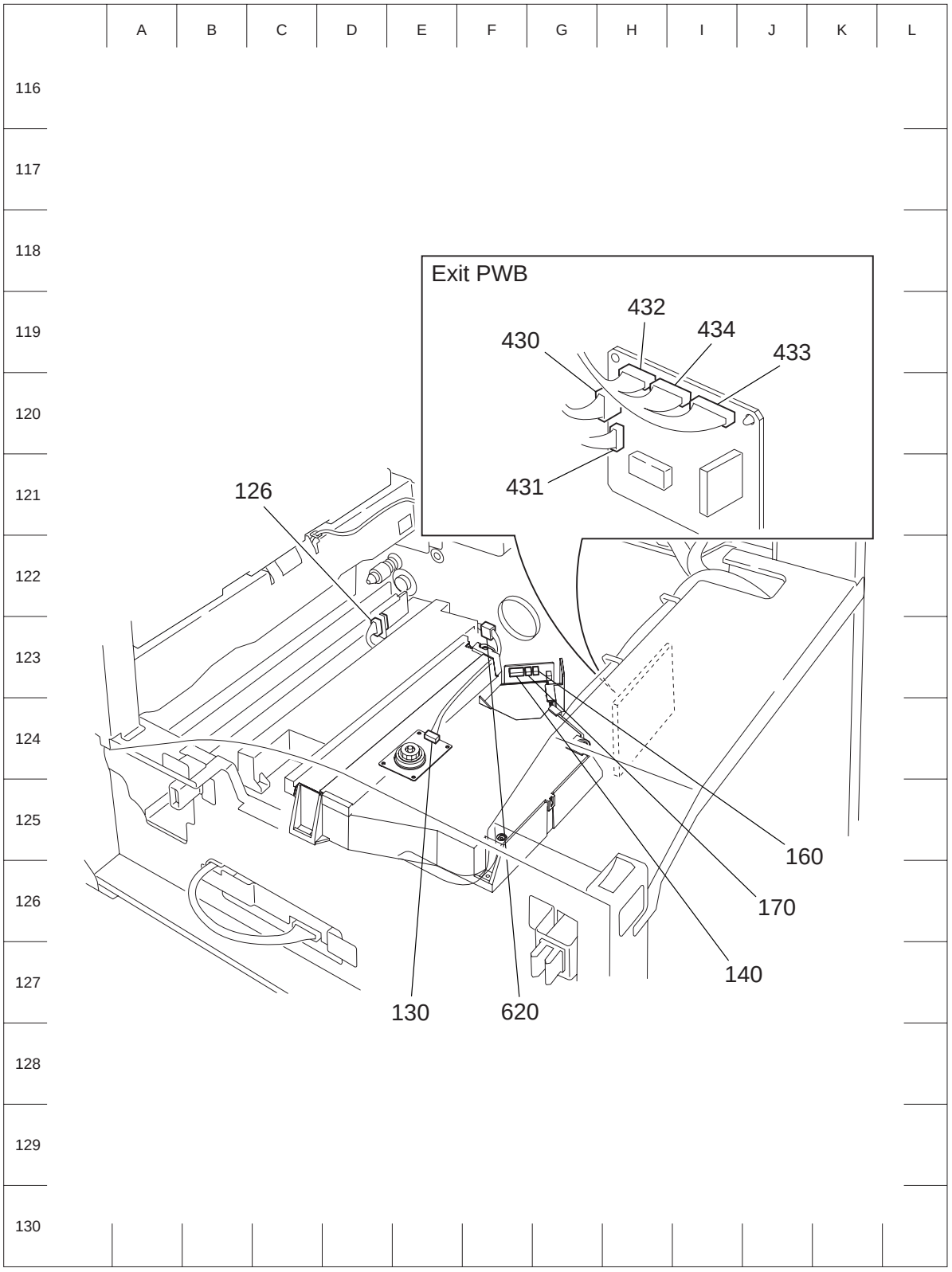
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Exit PWB
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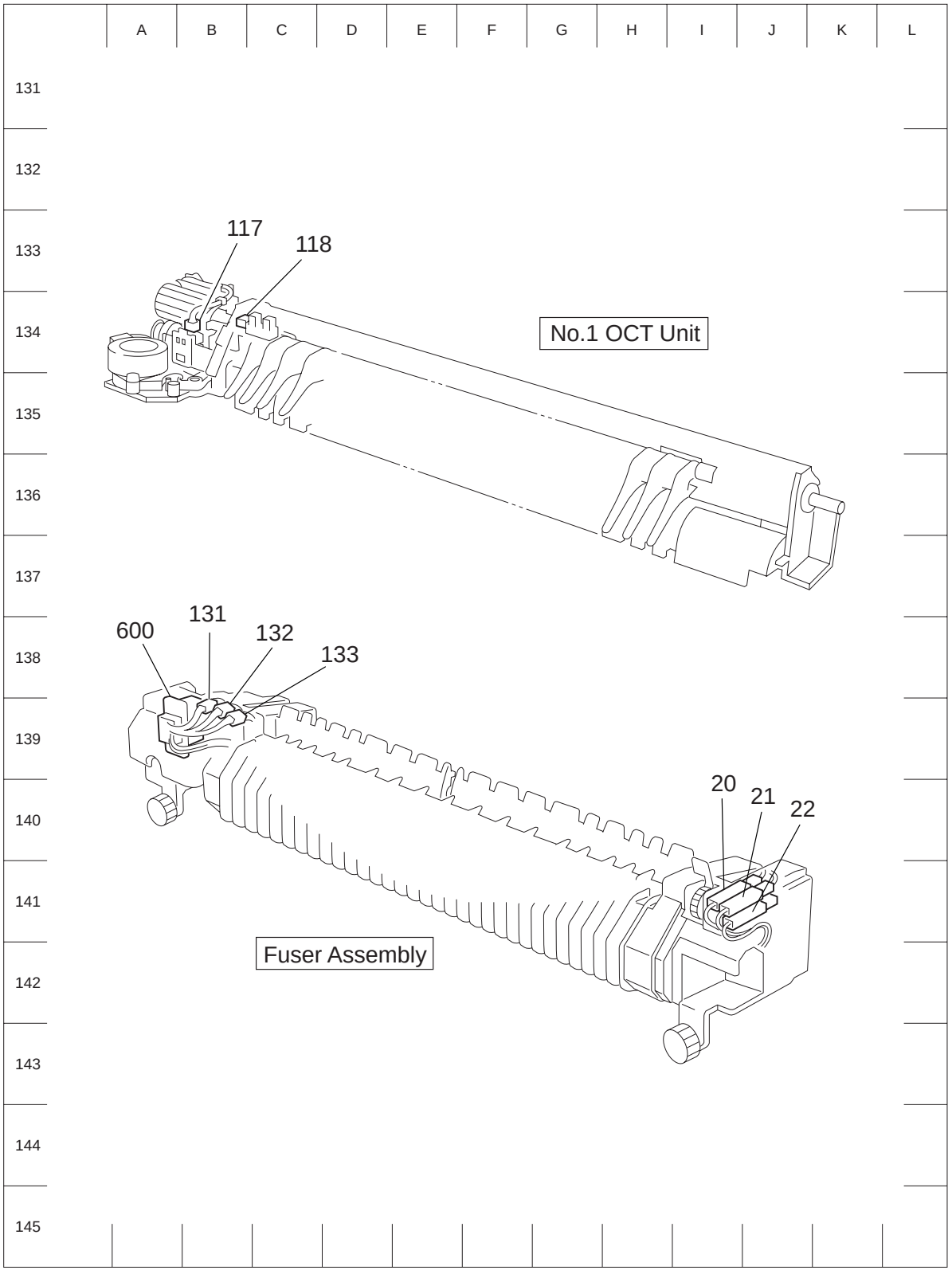
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No.1 OCT Unit
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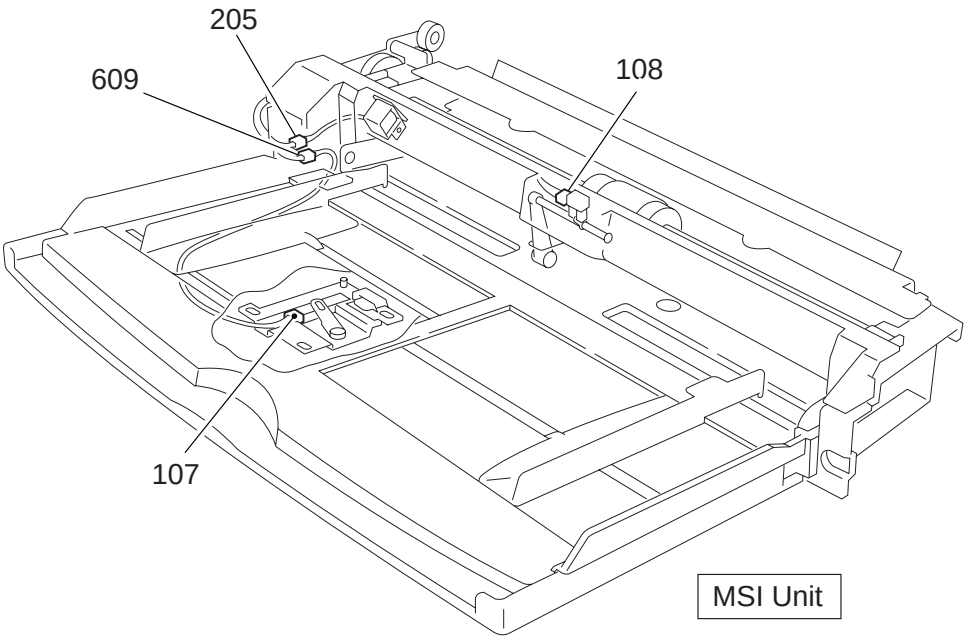
Fuser Assembly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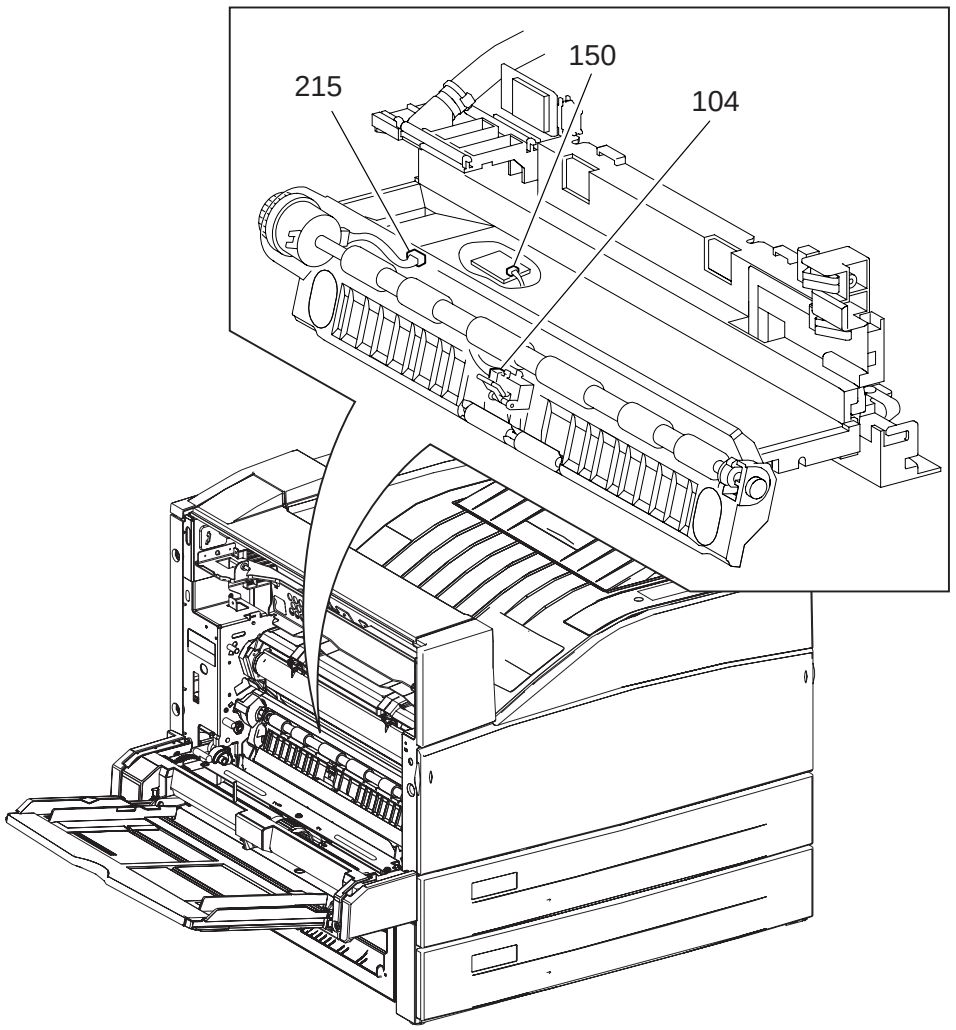
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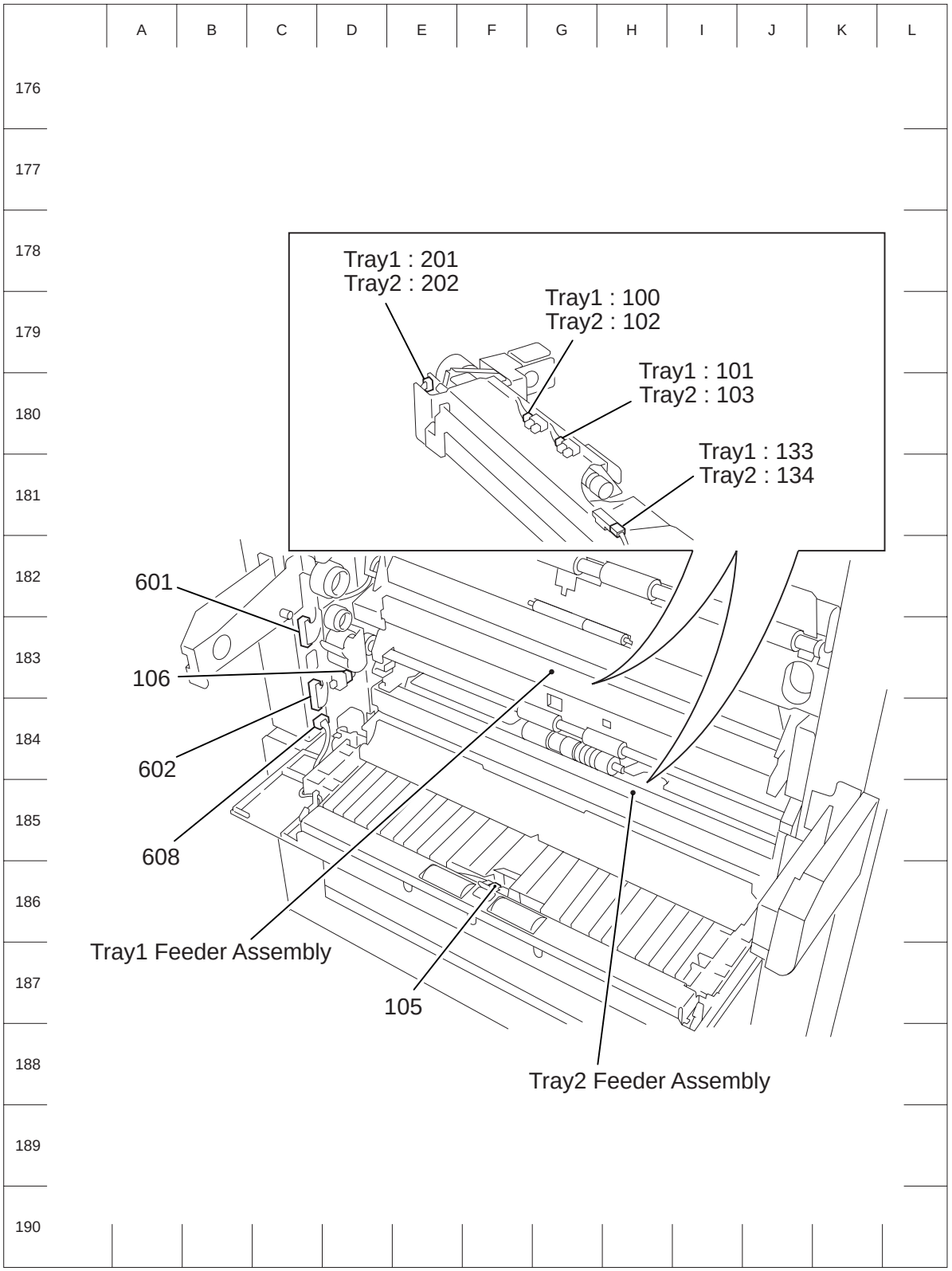
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Tray1 : 100
Tray2 : 102
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Tray1 : 133
Tray2 : 134
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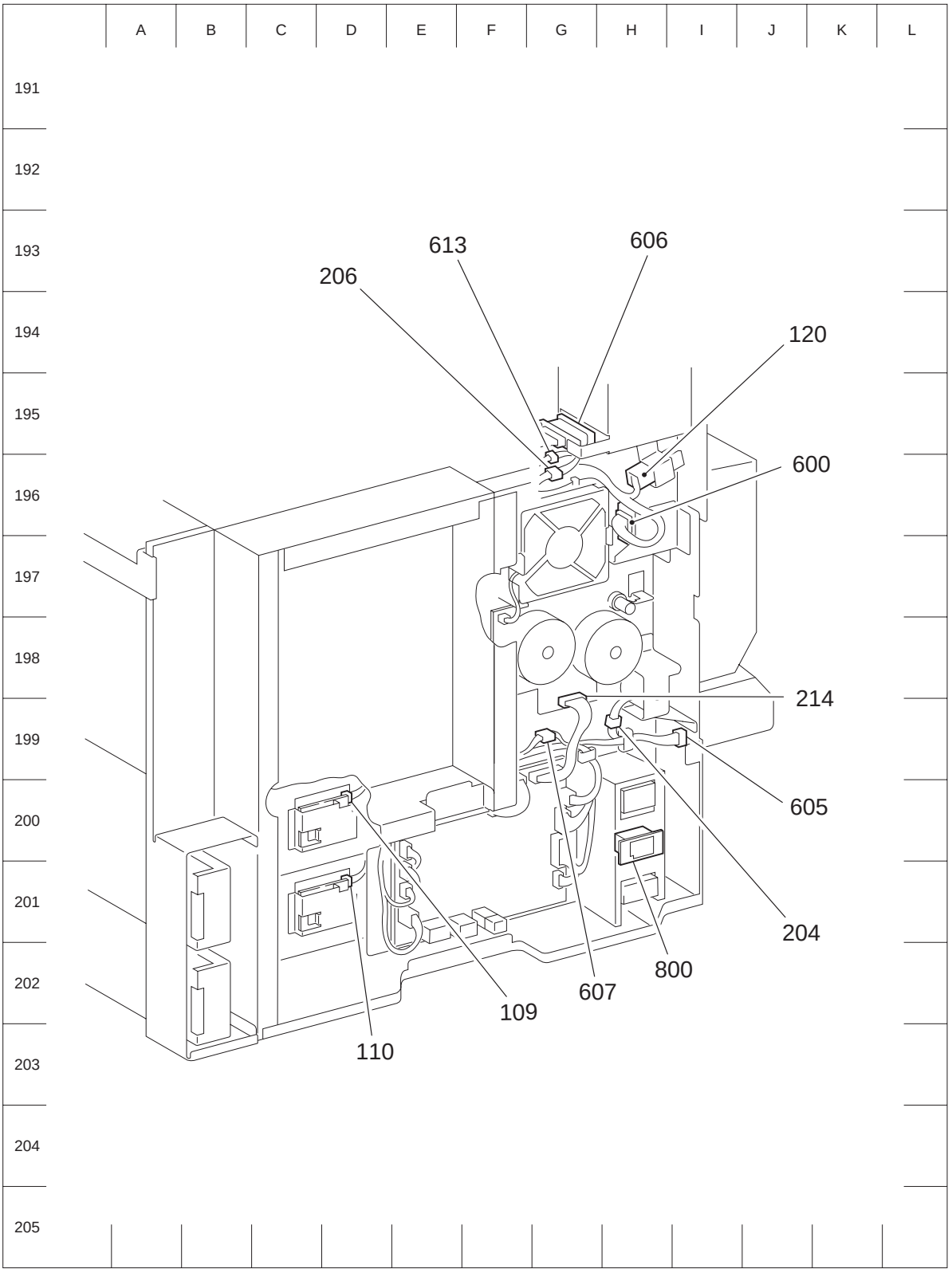
Tray1 Feeder Assembly
105
Tray2 Feeder Assembly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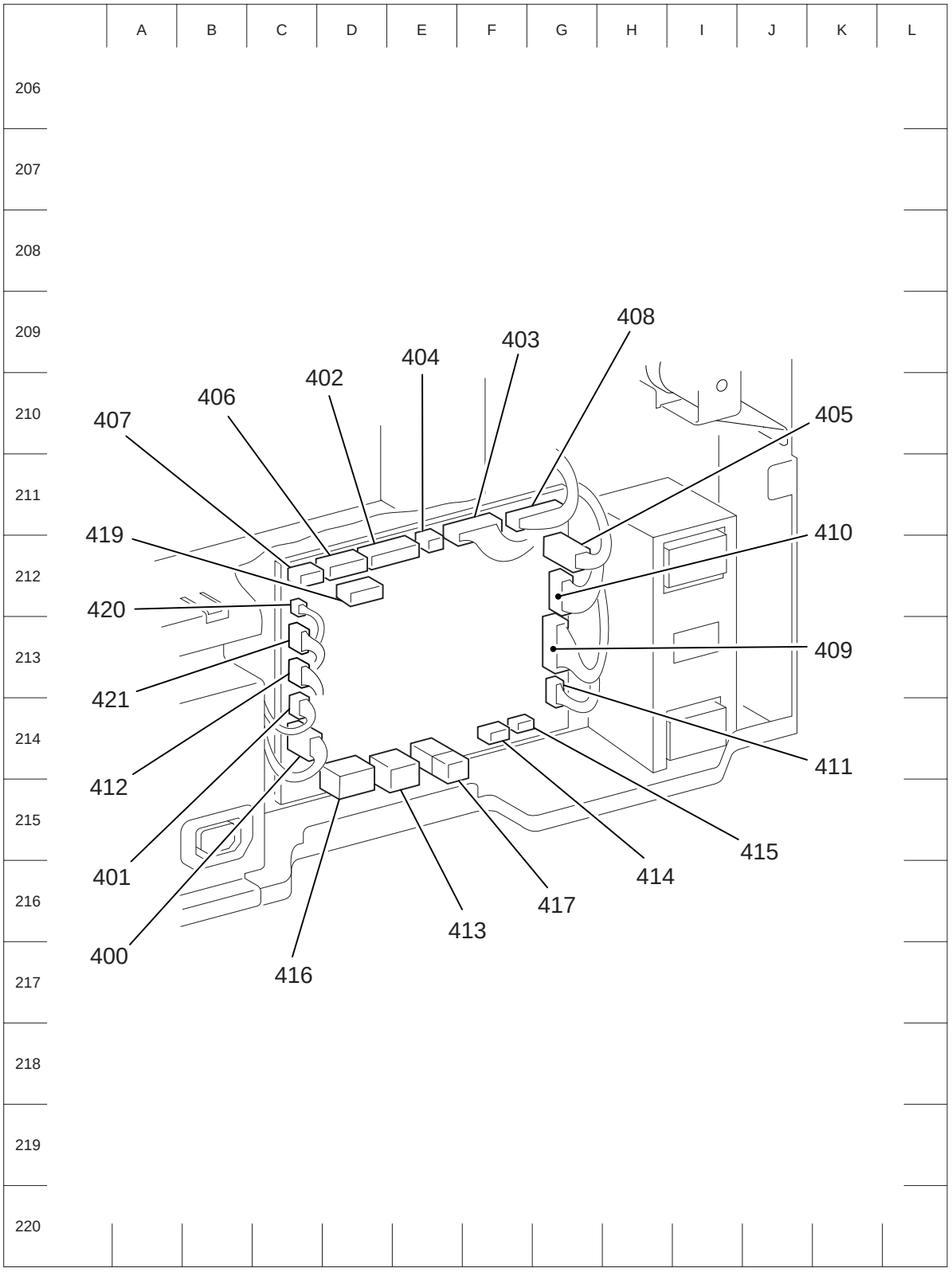
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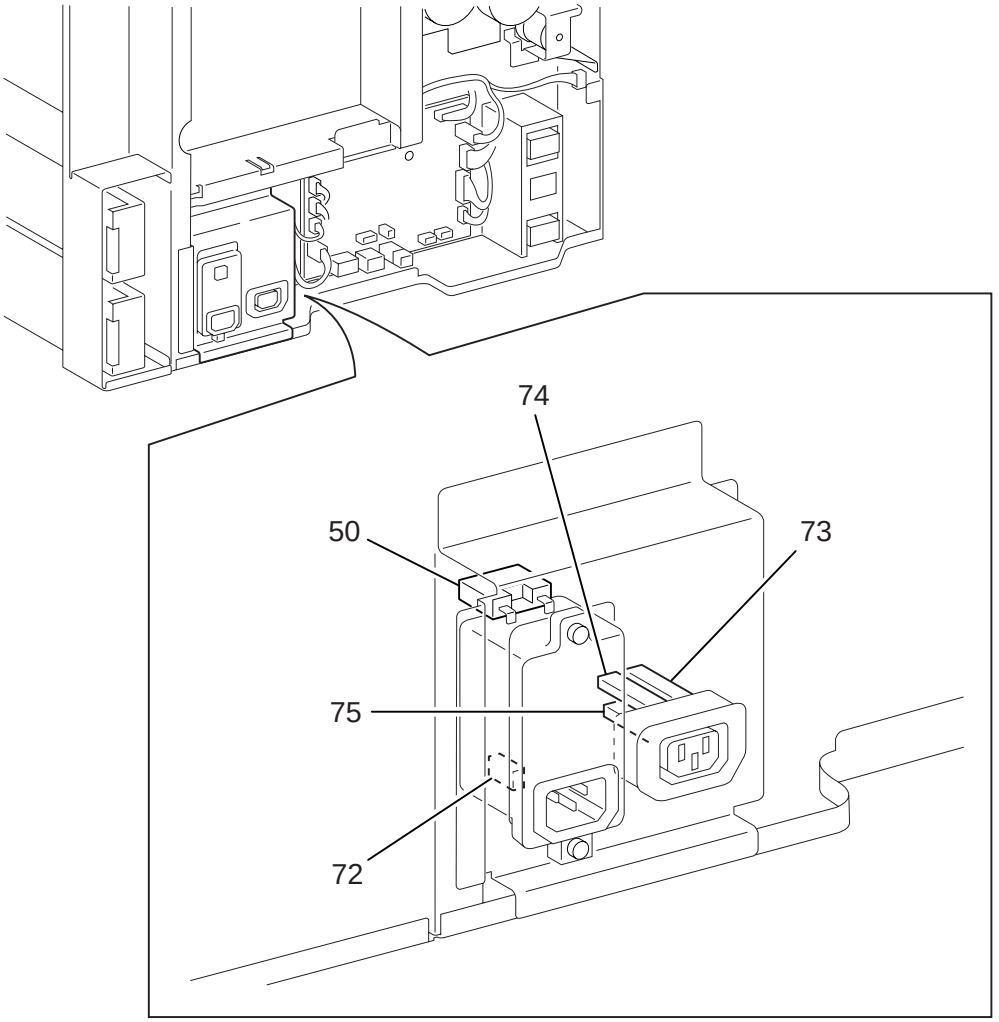
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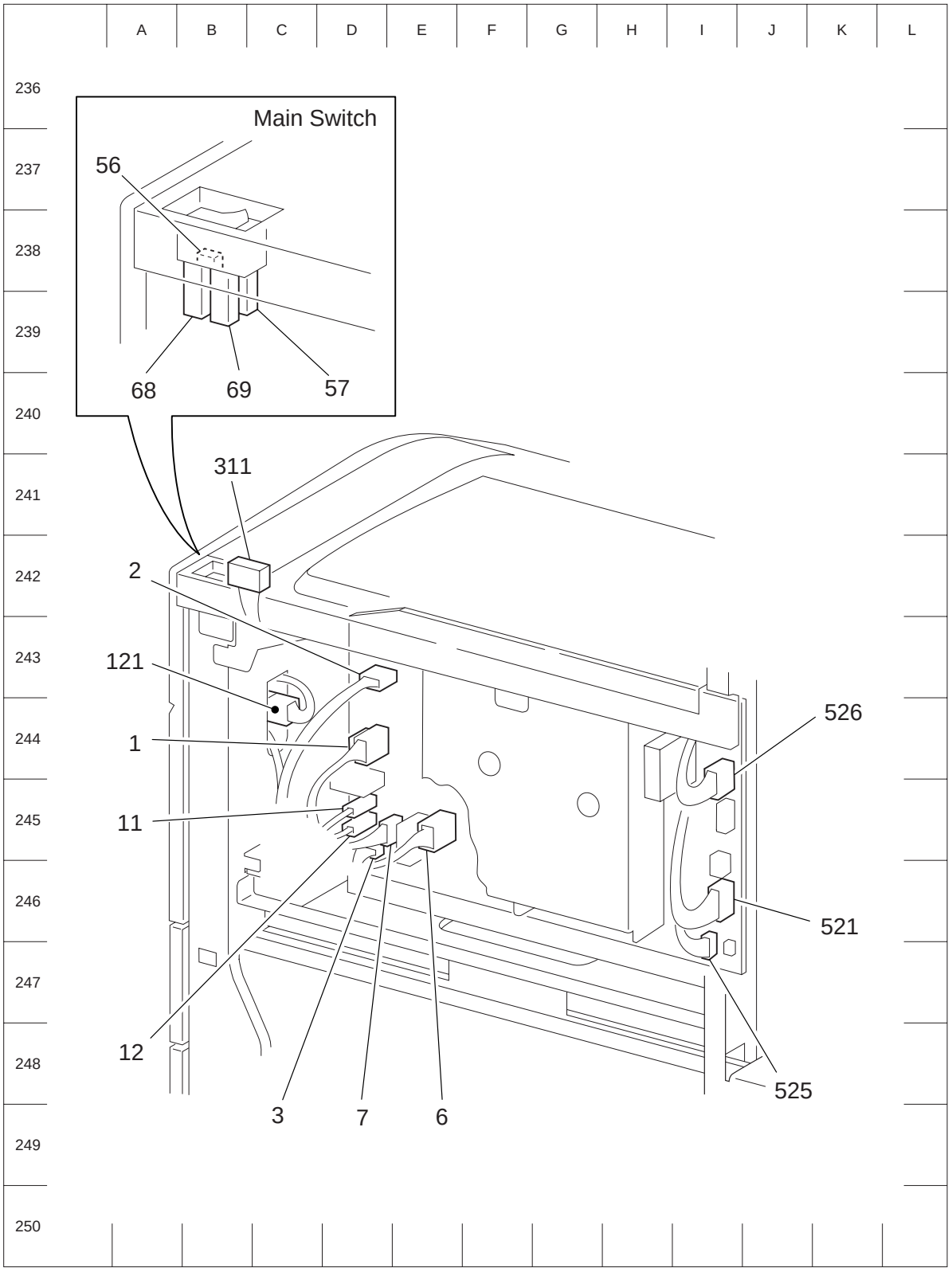


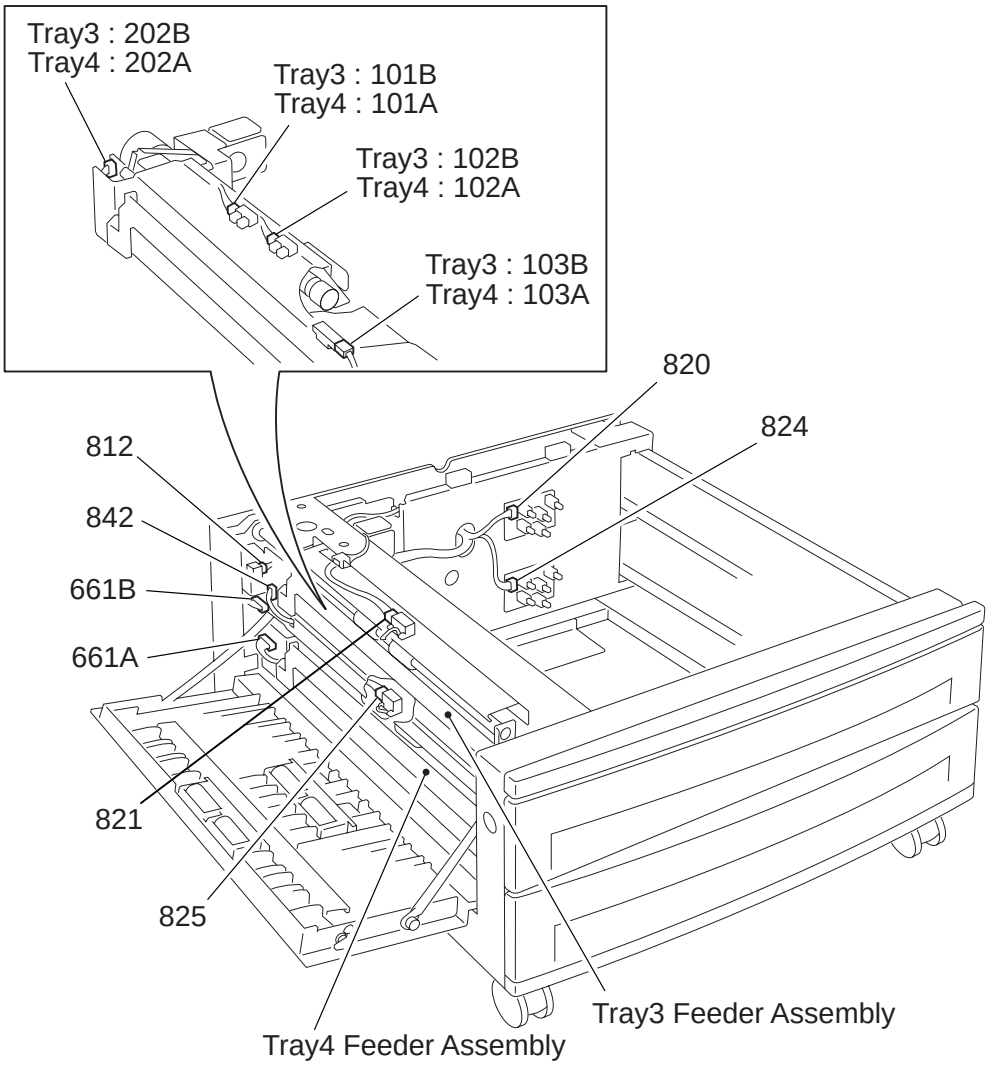
1000 Sheet Feeder

Connector [P (plug) / J (jack)]

List of P/J

P/J	Coordinates	Remarks
101A	C-304	Connects Level Sensor 4 and Tray 4 Harness Assembly
101B	C-304	Connects Level Sensor 3 and Tray 3 Harness Assembly
102A	D-305	Connects No Paper Sensor 4 and Tray 4 Harness Assembly
102B	D-305	Connects No Paper Sensor 3 and Tray 3 Harness Assembly
103A	D-306	Connects Pre Feed Sensor 4 and Tray 4 Harness Assembly
103B	D-306	Connects Pre Feed Sensor 3 and Tray 3 Harness Assembly
202A	B-304	Connects FMOT 4 and Tray 4 Harness Assembly
202B	B-304	Connects FMOT 3 and Tray 3 Harness Assembly
541	F-323	Connects PWBA ABC TM and Tray Module Harness Assembly
548	E-323	Connects PWBA ABC TM and Size Switch Harness Assembly
549A	F-324	Connects PWBA ABC TM and Feeder Harness Assembly
549B	F-324	Connects PWBA ABC TM and Feeder Harness Assembly
552	F-323	Connects PWBA ABC TM and T/A Harness Assembly
554	F-323	Connects PWBA ABC TM and Interlock Switch Harness Assembly
661A	D-309	Connects Tray 4 Harness Assembly and Feeder Harness Assembly
661B	D-308	Connects Tray 3 Harness Assembly and Feeder Harness Assembly
812	D-308	Connects Interlock Switch and Interlock Switch Harness Assembly
820	G-307	Connects Size Switch 3 and Size Switch Harness Assembly
821	E-308	Connects F-Out Sensor 3 and F-Out Sensor 3 Harness Assembly
822	I-322	Connects T/A Clutch and T/A Harness Assembly
824	G-308	Connects Size Switch 4 and Size Switch Harness Assembly
825	E-309	Connects F-Out Sensor 4 and F-Out Sensor 4 Harness Assembly
826	G-324	Connects T/A Motor and T/A Harness Assembly
841	I-320	Connects F-Out Sensor 3 Harness Assembly and Size Switch Harness Assembly
842	D-308	Connects F-Out Sensor 4 Harness Assembly and Size Switch Harness Assembly

P/J layout diagram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Tray4 : 202A
Tray3 : 101B
Tray4 : 101A
Tray3 : 102B
Tray4 : 102A
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661B
661A
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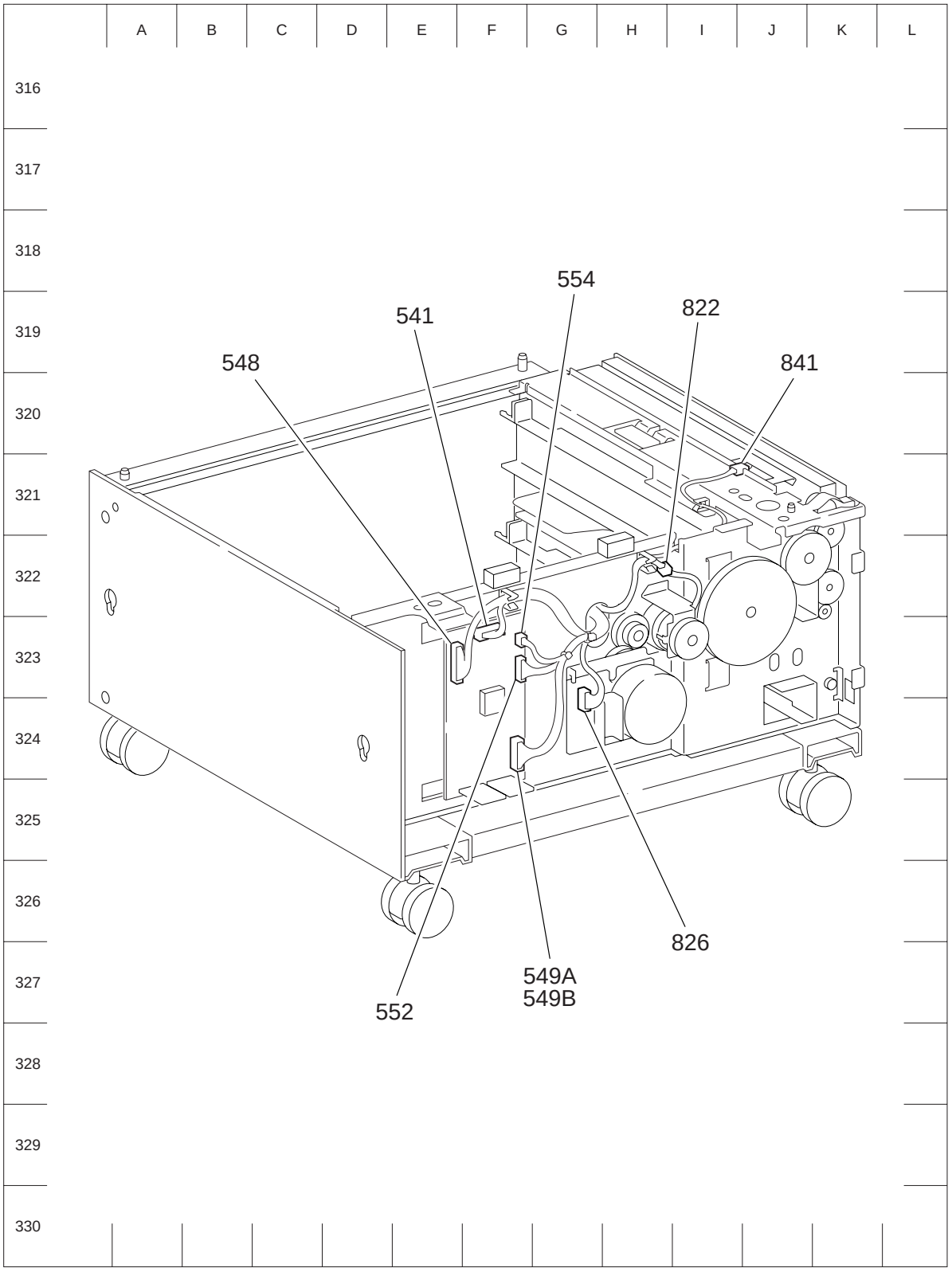
Tray3 Feeder Assembly
Tray4 Feeder Assembly

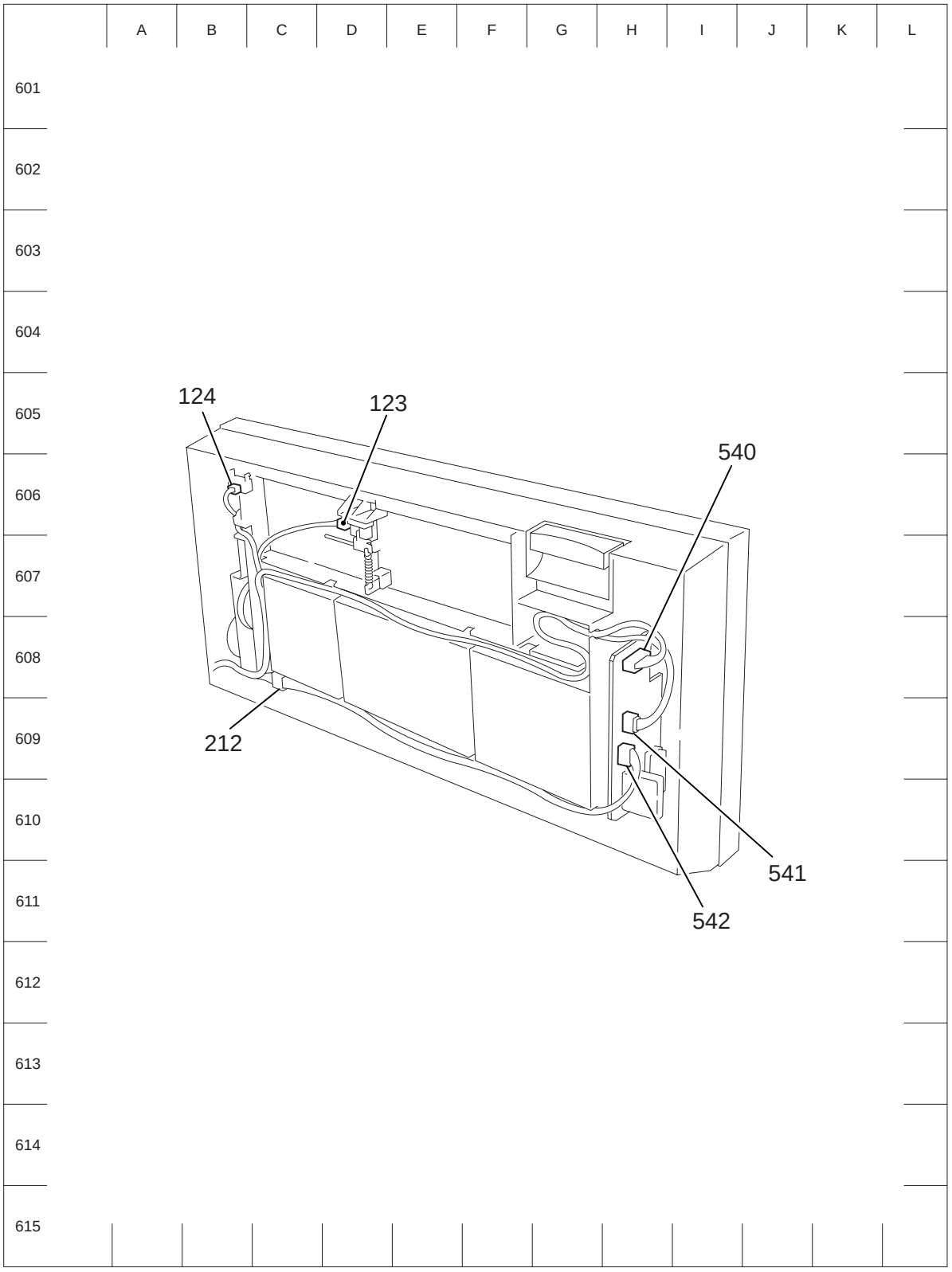


Duplex

Connector [P (plug) / J (jack)]

List of P/J

P/J	Coordinates	Remarks
123	D-606	Connects DUP Sensor and DUP Sensor Harness Assembly
124	B-606	Connects DUP Open Switch and Sensor Harness Assembly
212	C-608	Connects DUP Motor and DUP Motor Harness Assembly
540	H-608	Connects PWBA DUP and DUP Harness Assembly
541	H-609	Connects PWBA DUP and DUP Sensor Harness Assembly
542	H-609	Connects PWBA DUP and DUP Motor Harness Assembly

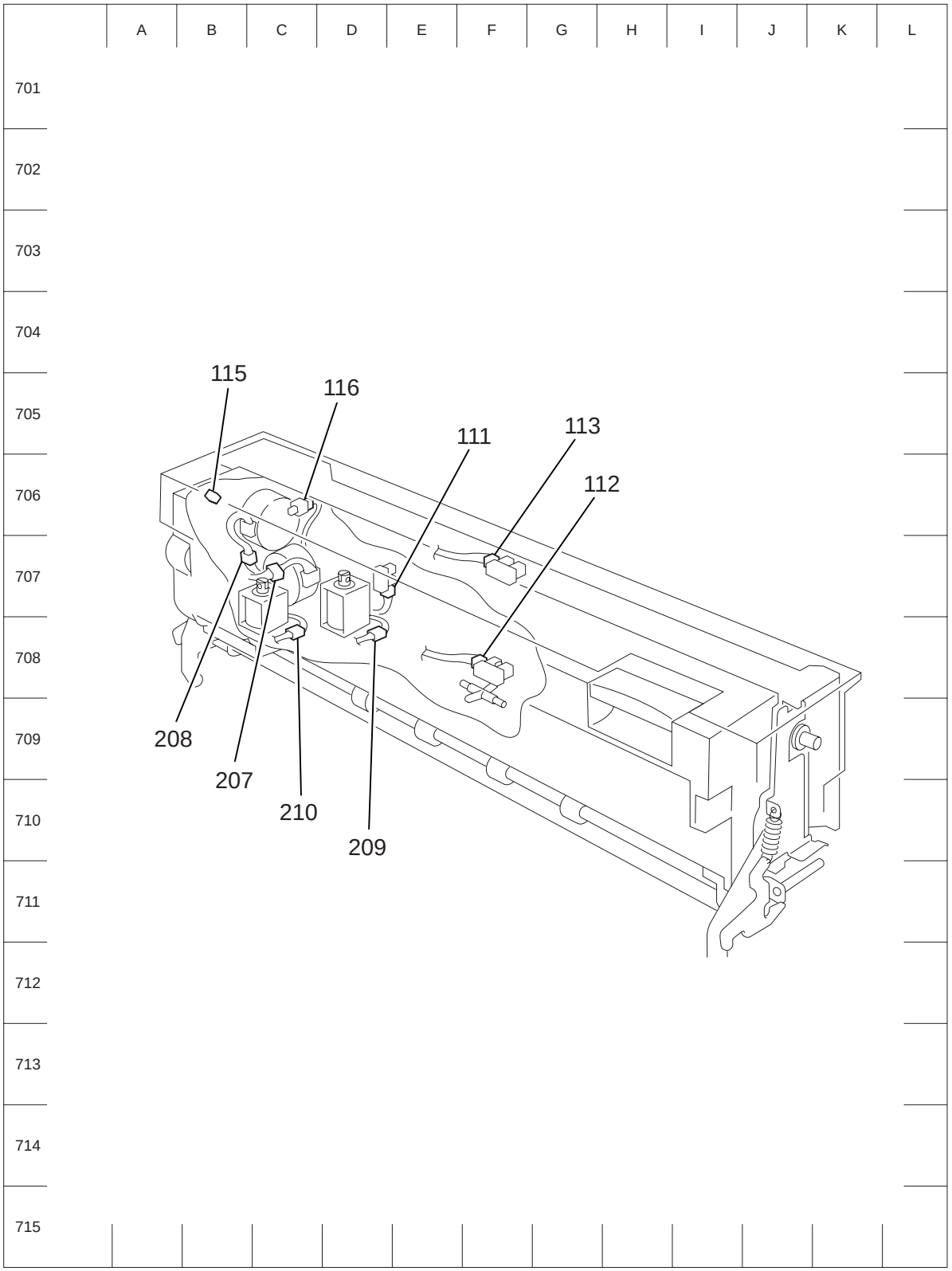


Exit 2

Connector [P (plug) / J (jack)]

List of P/J

P/J	Coordinates	Remarks
111	D-707	Connects OCT Home 2 Sensor and Exit 2 Harness Assembly
112	F-708	Connects Exit 2 Sensor and Exit 2 Harness Assembly
113	F-707	Connects Full Stack Sensor and Exit 2 Harness Assembly
115	B-706	Not Used
116	C-706	Connects Interlock Switch and Exit 2 Harness Assembly
207	C-707	Connects No.2 OCT Motor and Exit 2 Harness Assembly
208	B-707	Connects Exit Drive Motor and Exit 2 Harness Assembly
209	D-708	Connects Exit Gate Solenoid and Exit 2 Harness Assembly
210	C-708	Connects Fut Gate Solenoid and Exit 2 Harness Assembly



Finisher

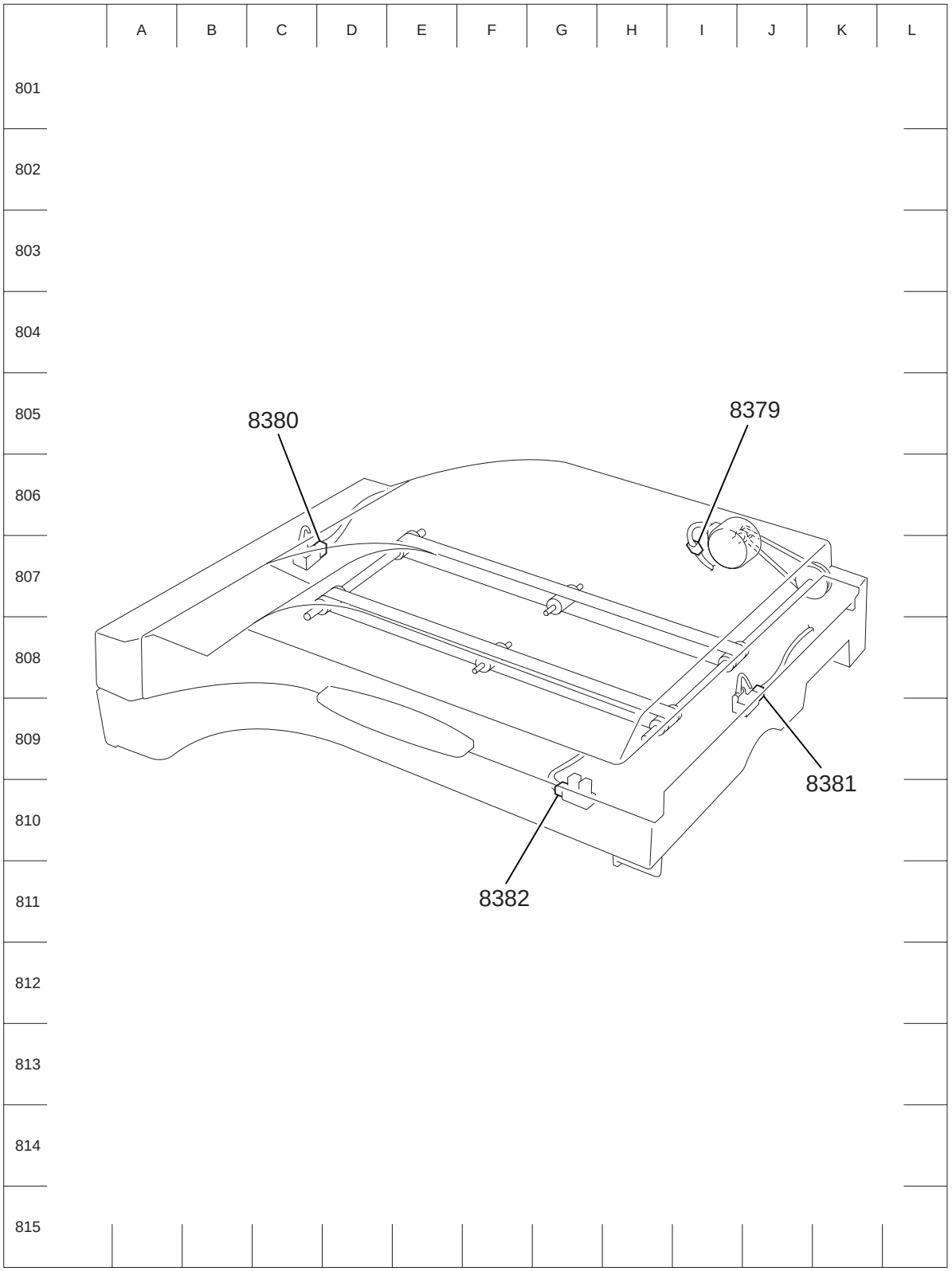
Connector [P (plug) / J (jack)]

List of P/J

P/J	Coordinates	Remarks
2	E-903	Connects LVPS and AC Inlet Harness Assembly
502	B-902	Connects LVPS and LVPS Harness Assembly
505	B-902	Connects LVPS and LVPS Harness Assembly
8300	G-894	Connects PWBA Main-C and I/F Harness Assembly
8301	G-894	Not Connects
8302	E-895	Connects PWBA Main-C and Main Sensor Harness Assembly
8304	E-892	Connects PWBA Main-C and Main Drive Harness Assembly
8305	E-894	Connects PWBA Main-C and Elevator Motor
8306	G-892	Connects PWBA Main-C and Punch Drive Harness Assembly
8307	G-893	Connects PWBA Main-C and Punch Sensor Harness Assembly
8308	F-892	Connects PWBA Main-C and Staple Harness Assembly
8309	E-894	Connects PWBA Main-C and Compiler Harness Assembly
8310	G-895	Connects PWBA Main-C and Htra Harness Assembly
8311	E-896	Not Connects
8313	F-896	Not Connects
8314	F-896	Connects PWBA Main-C and Interlock Harness Assembly
8315	E-896	Connects PWBA Main-C and LVPS Harness Assembly
8316	G-896	Not Connects
8317	E-896	Not Connects
8319	E-883	Connects X'port Ent Sensor and Harness Assembly
8320	F-853	Connects Compile Exit Sensor and Comp Sensor Harness Assembly
8321	F-881	Connects Top Tray Exit Sensor and Top Tray Exit Sensor Harness Assembly
8322	F-881	Connects Top Tray Full Sensor and Top Tray Full Sensor Harness Assembly
8324	E-852	Connects Eject Clamp Home Sensor and Main Sensor Harness Assembly
8325	E-868	Connects Set Clamp Home Sensor and Main Sensor Harness Assembly
8326	E-821	Connects Stacker No Paper Sensor and Main Sensor Harness Assembly
8327	E-821	Connects Upper Limit Sensor and Main Sensor Harness Assembly
8328	D-821	Connects Stack Encoder Sensor and Main Sensor Harness Assembly
8330	J-821	Connects Stack Height Sensor 2 and Main Sensor Harness Assembly
8331	E-819	Connects Stack Height Sensor 1 and Main Sensor Harness Assembly
8334	C-880	Connects Exit Motor and Main Drive Harness Assembly
8335	D-881	Connects Regi Motor and Main Drive Harness Assembly
8336	D-866	Connects Eject Motor and Main Drive Harness Assembly
8338	E-868	Connects Set Clamp Clutch and Main Drive Harness Assembly
8339	C-851	Connects Eject Clamp Motor and Main Drive Harness Assembly
8340	H-852	Connects Sub Paddle Solenoid and Main Drive Harness Assembly
8341	C-853	Connects Transport Gate Solenoid and Main Drive Harness Assembly
8342	B-884	Connects Fin Transport Motor and Main Drive Harness Assembly
8344	E-835	Connects Puncher Move Motor and Punch Drive Harness Assembly
8345	C-837	Connects Puncher Motor and Punch Unit Harness Assembly
8346	C-836	Connects Punch Hole Select Sensor and Punch Unit Harness Assembly
8347	C-836	Connects Puncher Front Sensor and Punch Unit Harness Assembly
8348	C-836	Connects Puncher Home Sensor and Punch Unit Harness Assembly
8349	C-837	Connects Puncher Motor Sensor and Punch Unit Harness Assembly
8350	G-837	Connects Side Regi Sensor 1 and Punch Unit Harness Assembly
8351	G-837	Connects Side Regi Sensor 2 and Punch Unit Harness Assembly
8352	C-836	Connects Puncher Move Home Sensor and Punch Sensor Harness Assembly

P/J	Coordinates	Remarks
8353	C-838	Connects Punch Box Set Sensor and Punch Box Set Sensor Harness Assembly
8354	E-826	Connects Stapler Move Position Sensor and Staple Harness Assembly
8356	F-826	Connects Stapler Unit and Staple Harness Assembly
8357	F-826	Connects Stapler Unit and Staple Harness Assembly
8358	F-826	Connects Stapler Move Motor and Staple Harness Assembly
8359	G-869	Connects Compile Tray No Paper and Compiler Harness Assembly
8360	I-869	Connects Front Tamper Home Sensor and Compiler Harness Assembly
8361	E-868	Connects Rear Tamper Home Sensor and Compiler Harness Assembly
8362	F-868	Connects Rear Tamper Motor and Compiler Harness Assembly
8363	G-869	Connects Front Tamper Motor and Compiler Harness Assembly
8364	H-852	Connects Eject Cover Switch and Interlock Harness Assembly
8365	F-822	Connects Finisher Front Door Switch and Interlock Harness Assembly
8371	I-898	Connects PWBA Htra and Htra Harness Assembly
8372	I-898	Connects PWBA Htra and H-X'port 1 Harness Assembly
8373	I-898	Not Connects
8376	E-895	Connects PWBA Main-C and Gate Sensor 1 Harness Assembly
8379	I-807	Connects H-X‘Port Ent Sensor and H-X‘Port Harness Assembly
8380	C-807	Connects H-X‘Port Motor and H-X‘Port Harness Assembly
8381	J-809	Connects H-X‘Port Exit Sensor and H-X‘Port Harness Assembly
8382	G-810	Connects H-X‘Port Interlock Sensor and H-X‘Port Harness Assembly
8389	F-892	Not Connects
8392	F-882	Connects Buffer Path Sensor and Buffer Path Sensor Harness Assembly
8394	B-853	Connects Buffer Gate Solenoid and Main Drive Harness Assembly
8394	J-898	Connects PWBA Htra and Htra Assembly
8432	E-882	Connects Gate Sensor and Gate Sensor Harness Assembly
8452	C-839	Connects Punch Full Sensor and Punch Full Sensor Harness Assembly
8500	I-898	Connects PWBA Htra and Punch Full Sensor Harness Assembly

P/J layout diagram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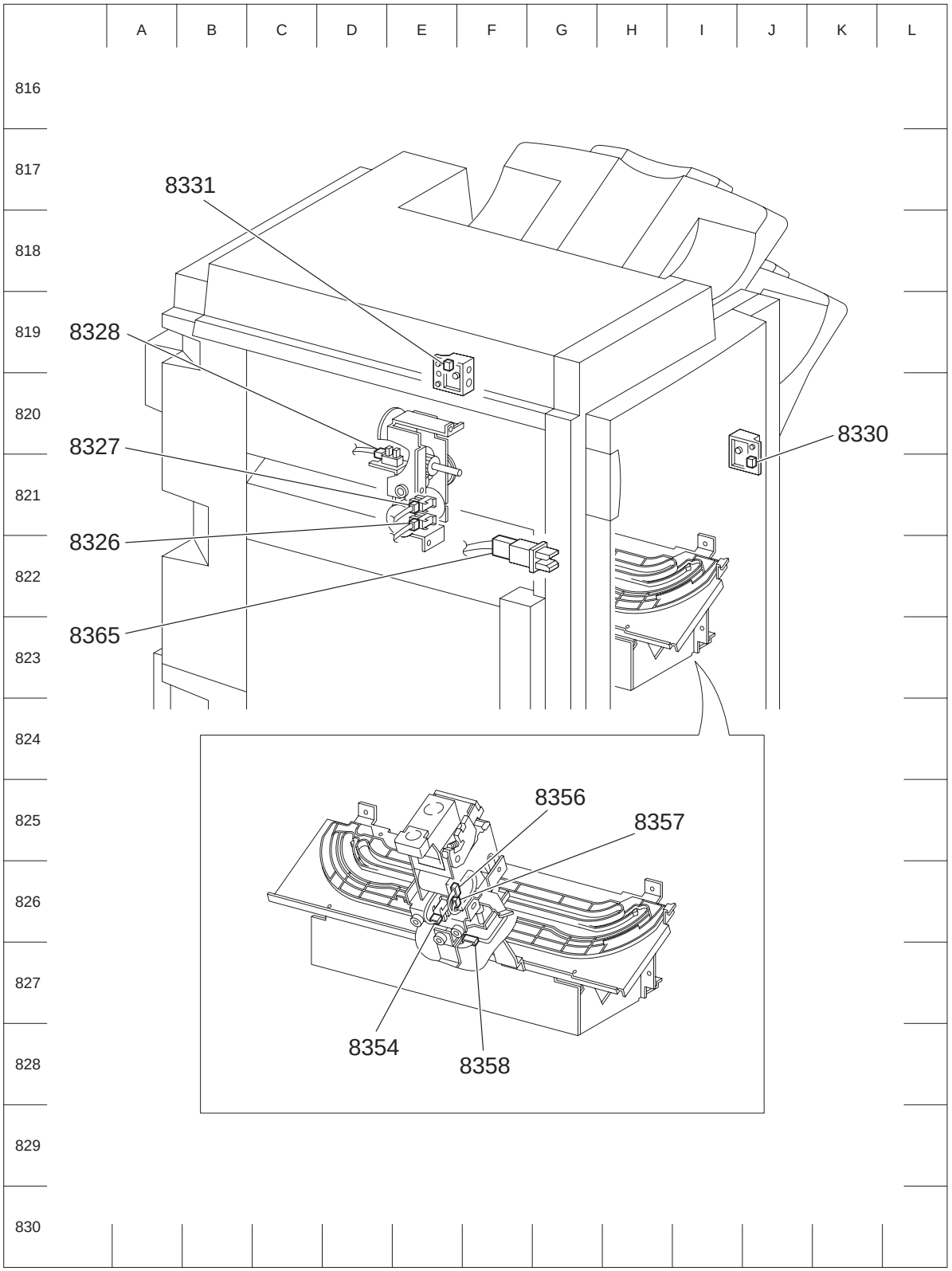
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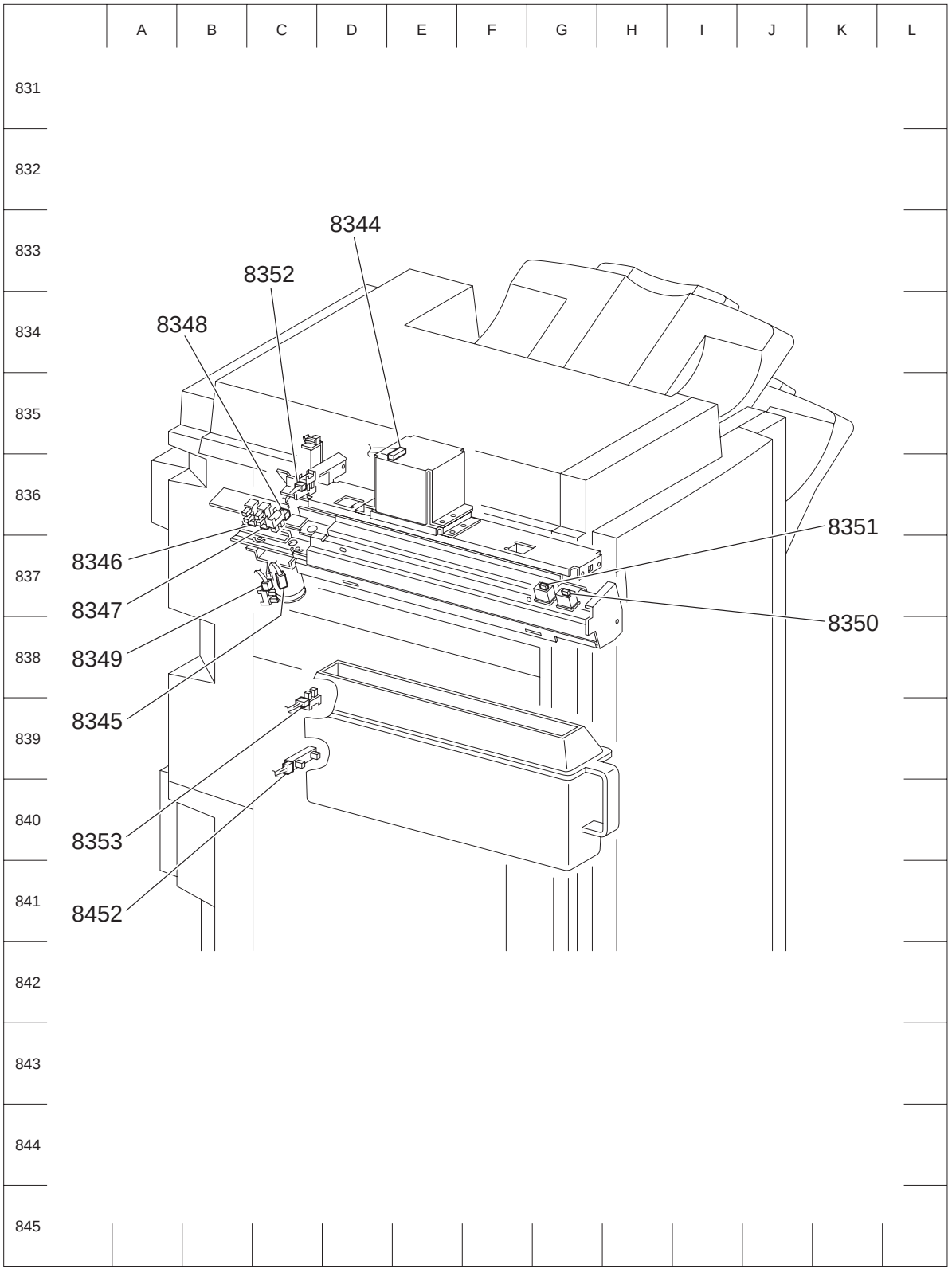
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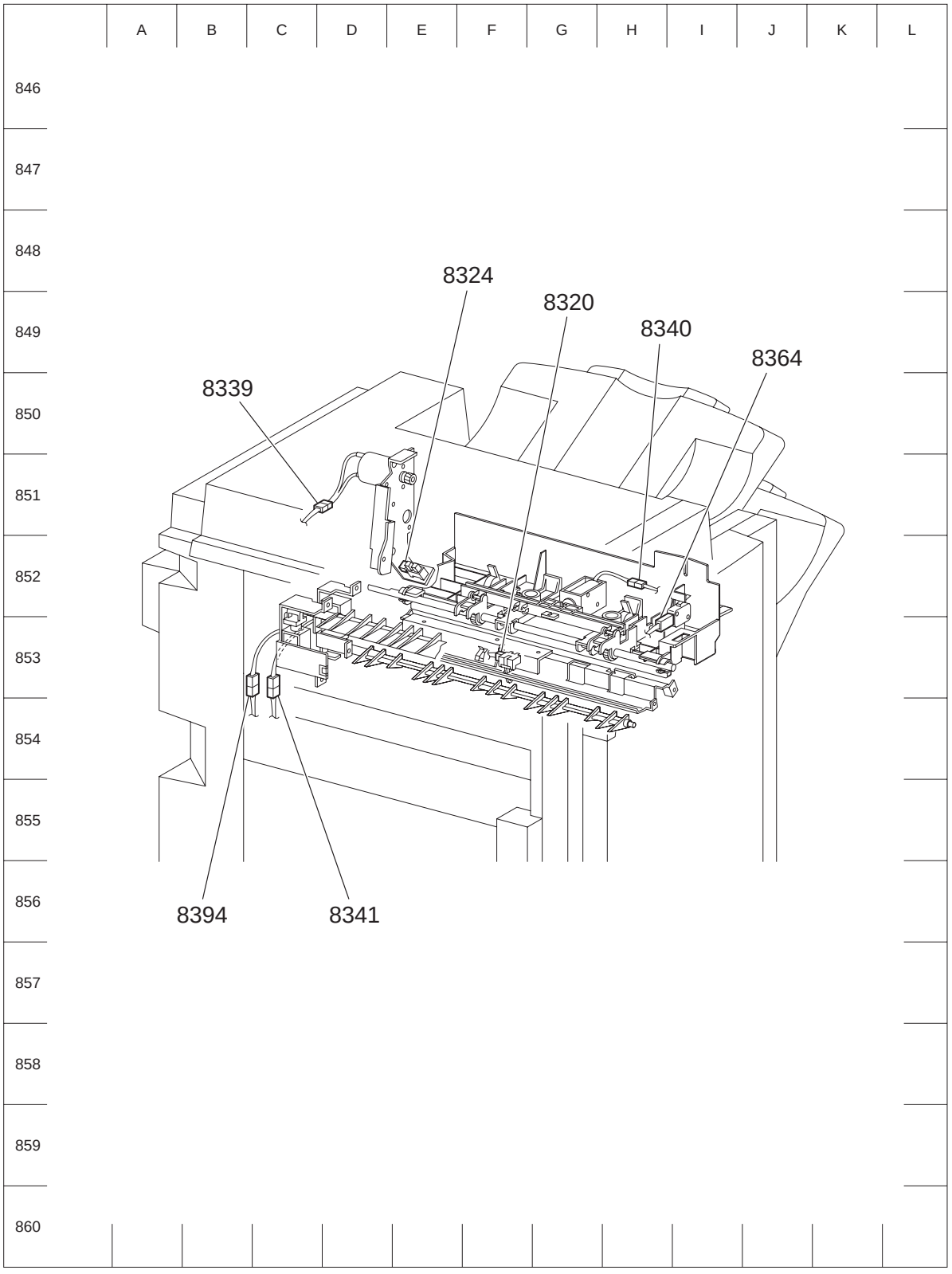
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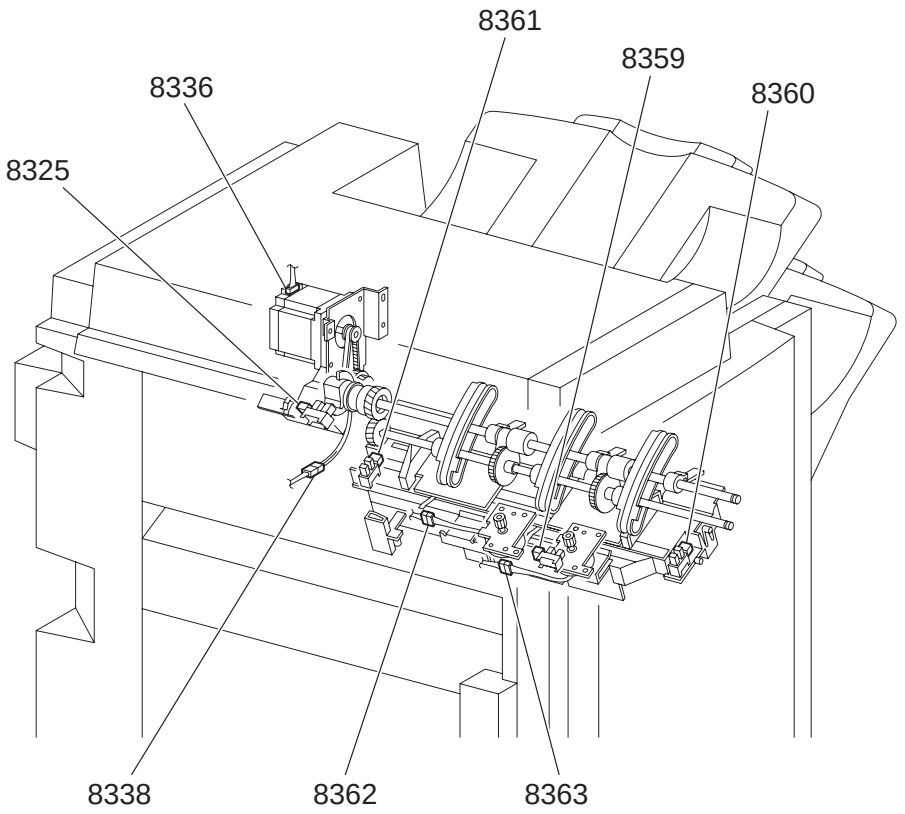
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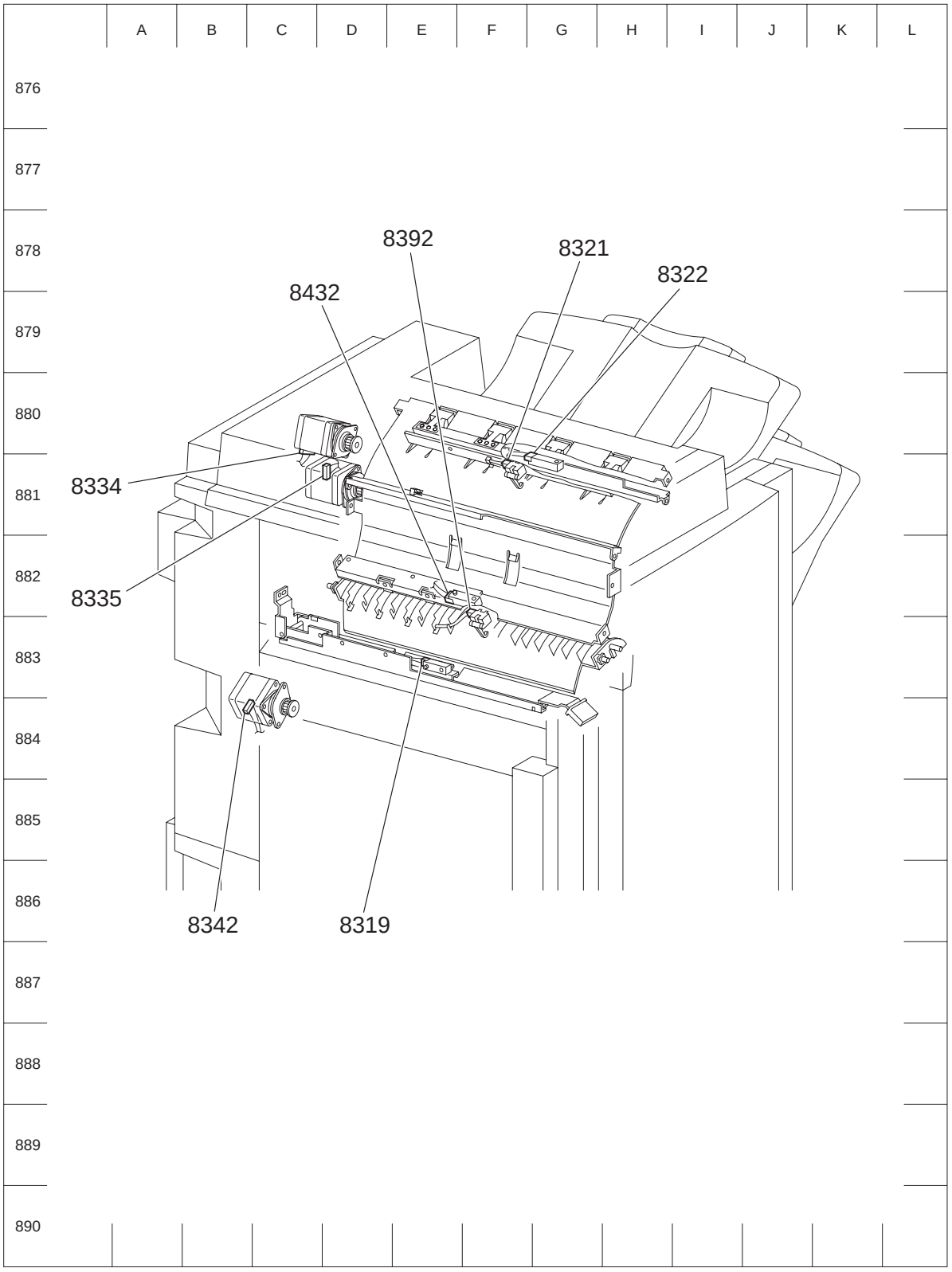
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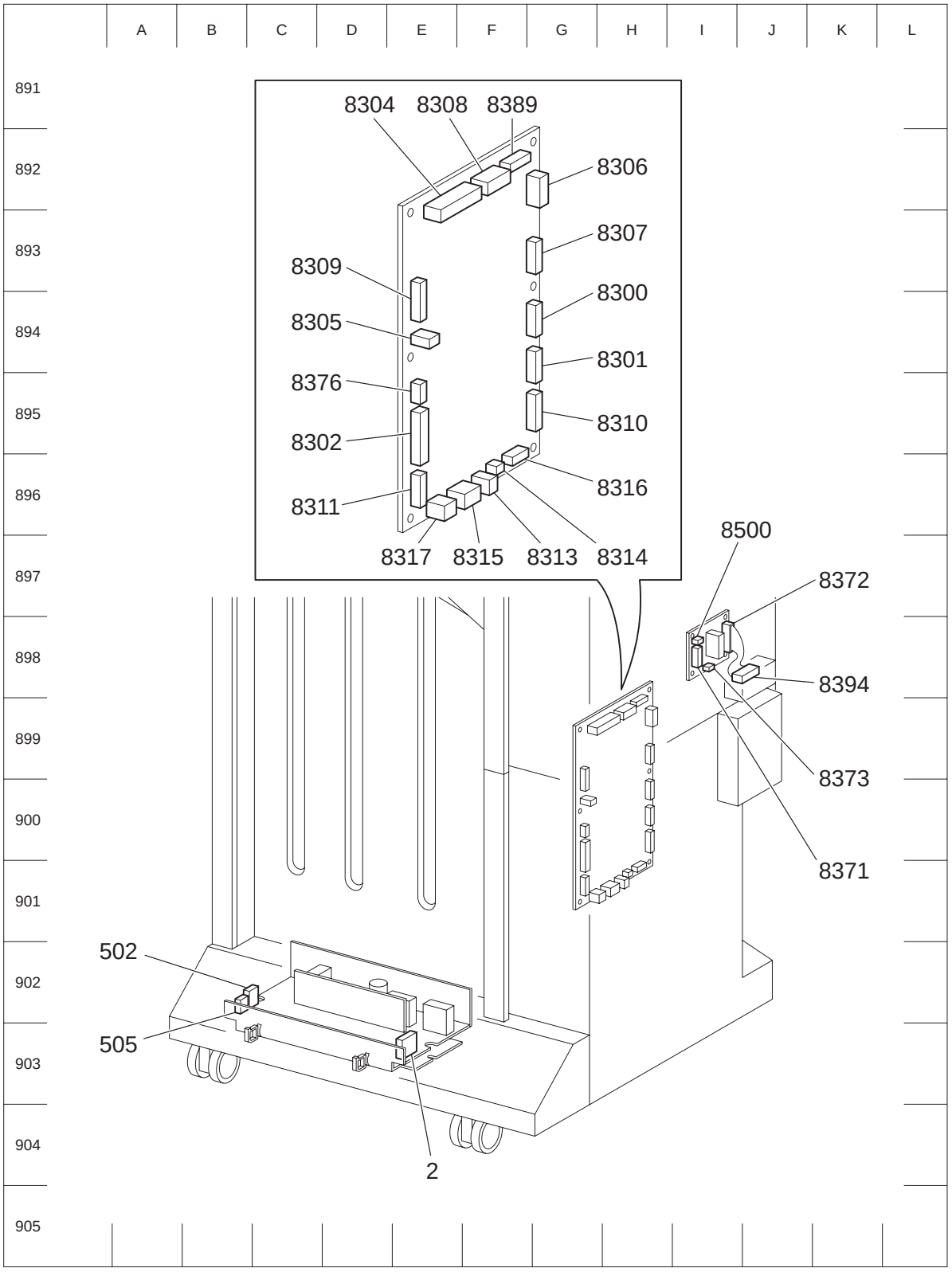


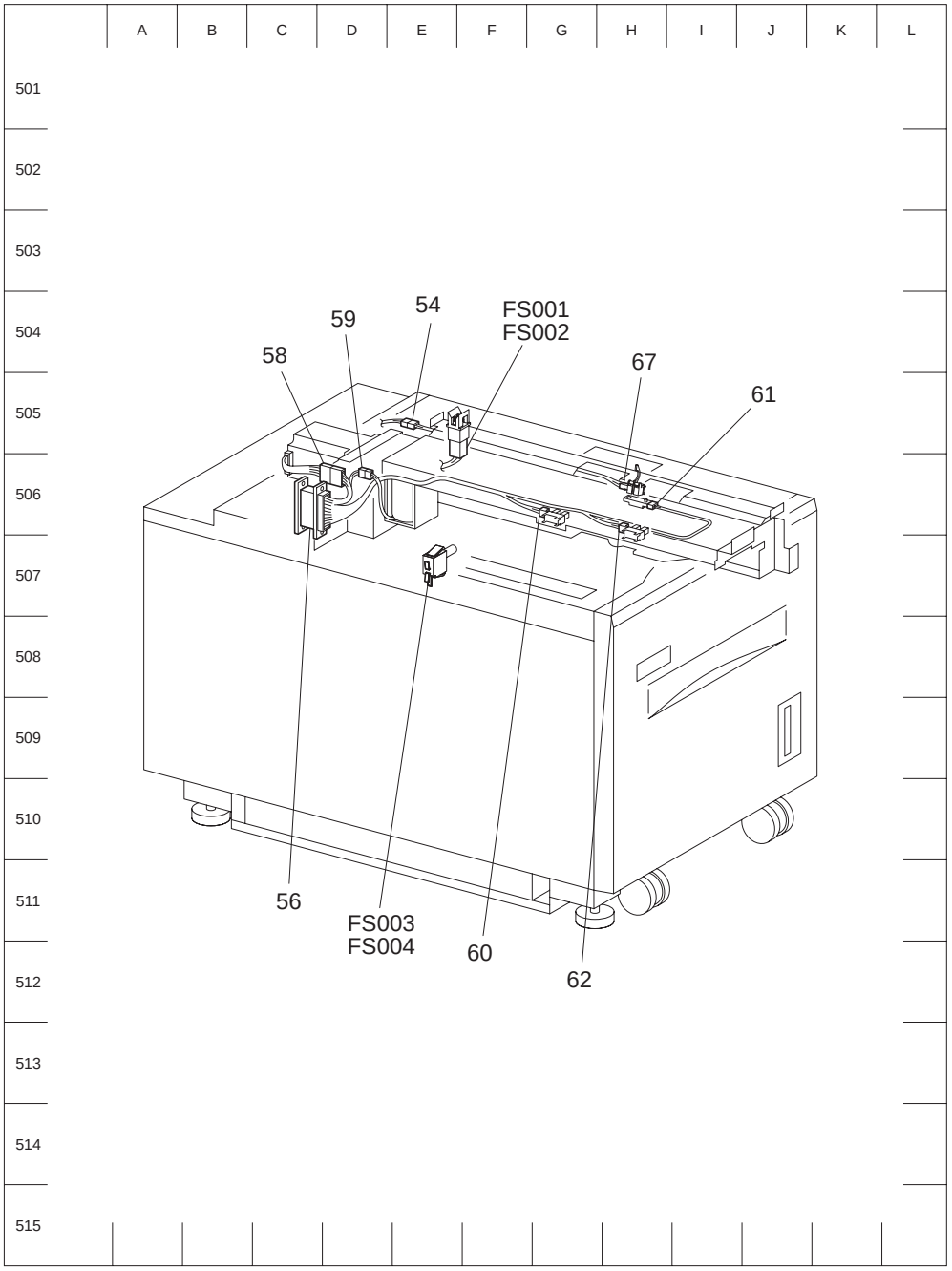
HCF

Connector [P (plug) / J (jack)]

List of P/J

P/J	Coordinates	Remarks
1	G-523	Connects PWBA HCF and Sensor Harness Assembly
2	G-523	Connects PWBA HCF and HCF Feeder 1 Harness Assembly
3	G-524	Connects PWBA HCF and HCF Harness Assembly
4	G-524	Connects PWBA HCF and HCF Harness Assembly
5	F-524	Connects PWBA HCF and Interlock Switch Harness Assembly
6	F-524	Connects PWBA HCF and HCF Feeder 1 Harness Assembly
8	G-523	Connects PWBA HCF and Side Out Switch Harness Assembly
51	F-521	Connects Size A Sensor and Sensor Harness Assembly
52	G-521	Connects Size B Sensor and Sensor Harness Assembly
53	F-525	Connects Tray In Sensor and Sensor Harness Assembly
54	E-505	Connects Feed Out Sensor Harness Assembly and Sensor Harness Assembly
56	C-506	Connects HCF Feeder Harness Assembly and HCF Feeder 1 Harness Assembly
57	E-524	Connects T/A Motor and HCF Feeder 1 Harness Assembly
58	D-506	Connects Feed Motor and HCF Feeder Harness Assembly
59	D-506	Connects NUG Solenoid and HCF Feeder Harness Assembly
60	G-506	Connects No Paper Sensor and HCF Feeder Harness Assembly
61	H-506	Connects PF Sensor and HCF Feeder Harness Assembly
62	H-506	Connects Level Sensor and HCF Feeder Harness Assembly
67	H-506	Connects Feed Out Sensor and Feed Out Sensor Harness Assembly
FS001	E-505	Connects Trans Interlock Switch and Interlock Switch Harness Assembly
FS002	E-505	Connects Trans Interlock Switch and Interlock Switch Harness Assembly
FS003	E-507	Connects HCF Side Out Switch and Side Out Switch Harness Assembly
FS004	E-507	Connects HCF Side Out Switch and Side Out Switch Harness Assembly

PL 0.5 P/J layout diagram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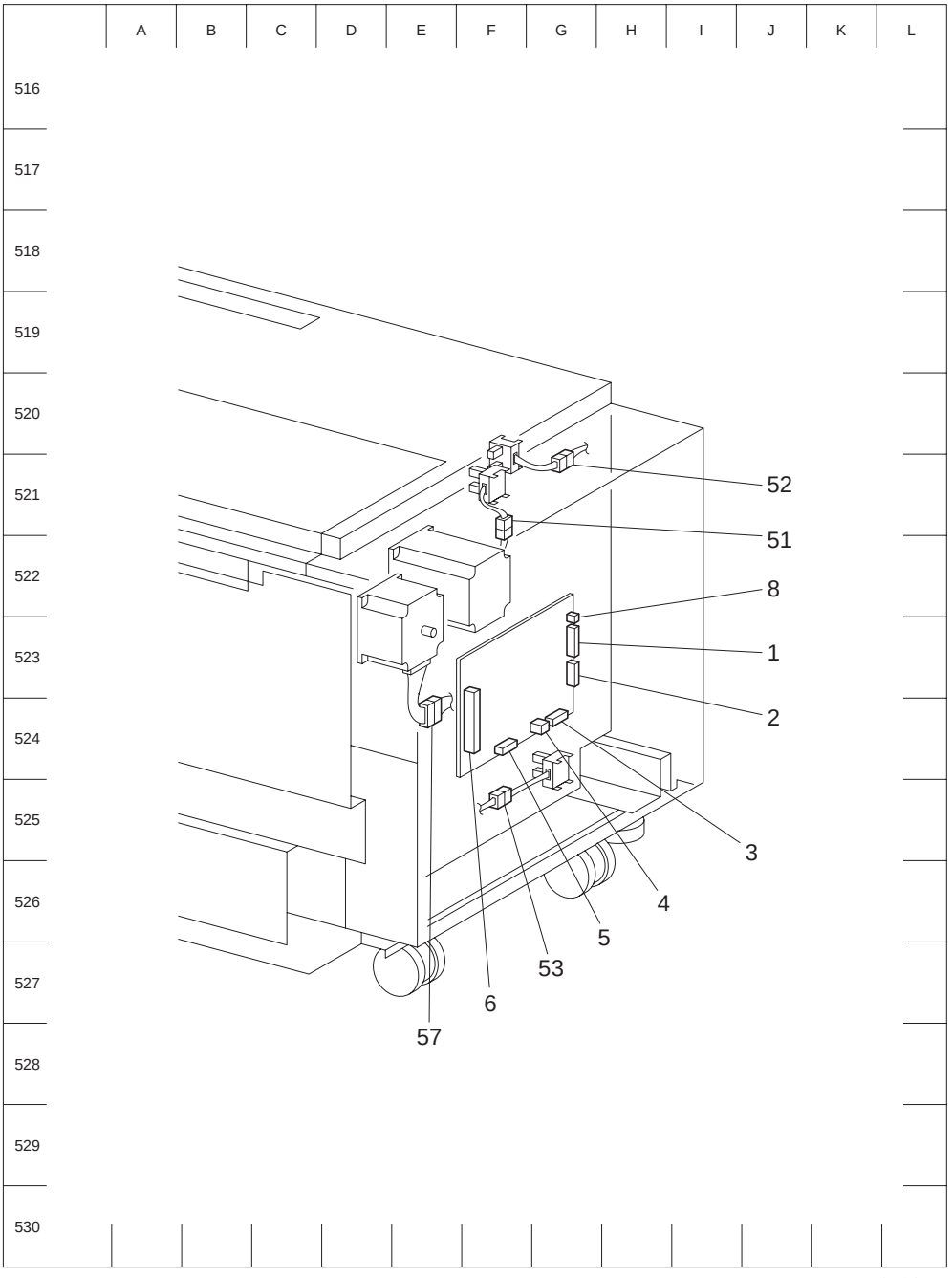


Tandem Tray

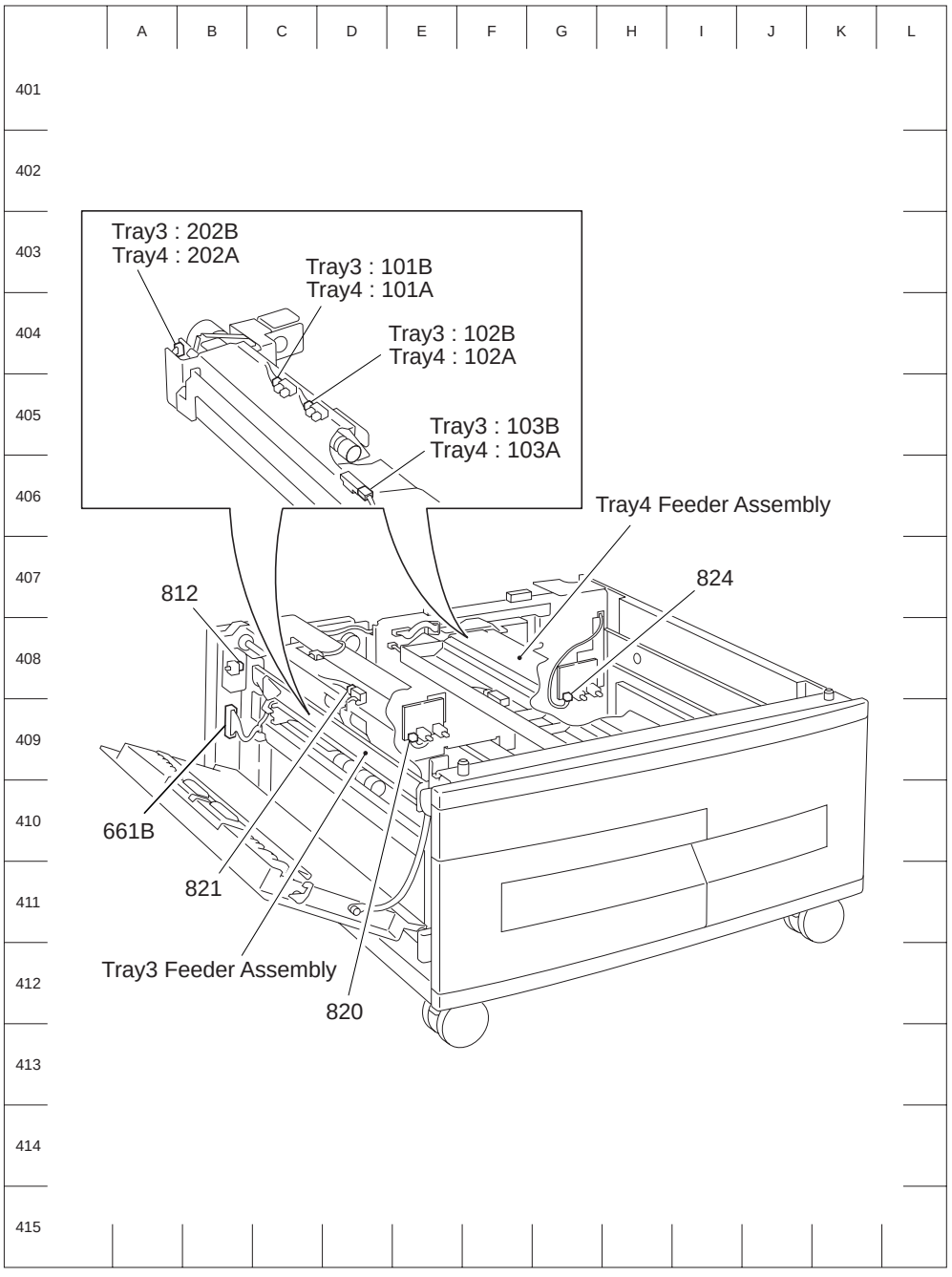
Connector [P (plug) / J (jack)]

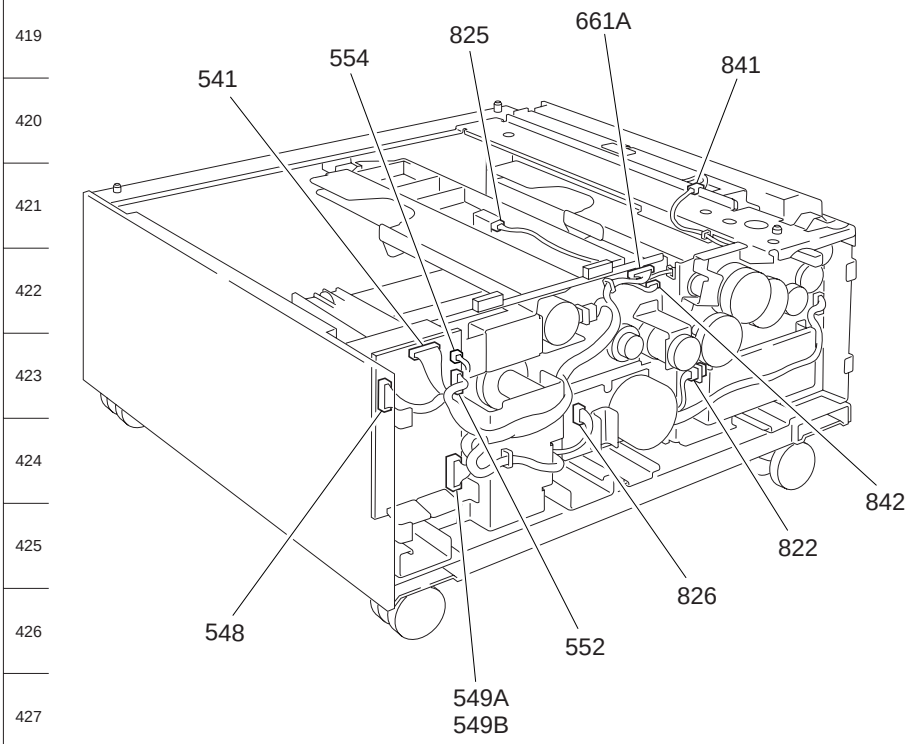
List of P/J

P/J	Coordinates	Remarks
101A	C-404	Connects Level Sensor 4 and Tray 4 Harness Assembly
101B	C-404	Connects Level Sensor 3 and Tray 3 Harness Assembly
102A	D-405	Connects No Paper Sensor 4 and Tray 4 Harness Assembly

P/J	Coordinates	Remarks
102B	D-405	Connects No Paper Sensor 3 and Tray 3 Harness Assembly
103A	D-406	Connects Pre Feed Sensor 4 and Tray 4 Harness Assembly
103B	D-406	Connects Pre Feed Sensor 3 and Tray 3 Harness Assembly
202A	A-404	Connects FMOT 4 and Tray 4 Harness Assembly
202B	A-404	Connects FMOT 3 and Tray 3 Harness Assembly
541	E-423	Connects PWBA ABC TM and Tray Module Harness Assembly
548	D-423	Connects PWBA ABC TM and Size Switch Harness Assembly
549A	E-424	Connects PWBA ABC TM and Feeder Harness Assembly
549B	E-424	Connects PWBA ABC TM and Feeder Harness Assembly
552	E-423	Connects PWBA ABC TM and T/A Harness Assembly
554	E-423	Connects PWBA ABC TM and Interlock Switch Harness Assembly
661A	H-412	Connects Tray 4 Harness Assembly and Feeder Harness Assembly
661B	B-409	Connects Tray 3 Harness Assembly and Feeder Harness Assembly
812	B-408	Connects Interlock Switch and Interlock Switch Harness Assembly
820	E-409	Connects Size Switch 3 and Size Switch Harness Assembly
821	B-408	Connects F-Out Sensor 3 and F-Out Sensor 3 Harness Assembly
822	I-423	Connects T/A Clutch and T/A Harness Assembly
824	E-408	Connects Size Switch 4 and Size Switch Harness Assembly
825	F-421	Connects F-Out Sensor 4 and F-Out Sensor 4 Harness Assembly
826	G-423	Connects T/A Motor and T/A Harness Assembly
841	I-420	Connects F-Out Sensor 3 Harness Assembly and Size Switch Harness Assembly
842	H-422	Connects F-Out Sensor 4 Harness Assembly and Size Switch Harness Assembly

P/J layout diagram

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